DECEMBER '58

MODERN TEXTILES

MAGAZINE

Specializing in Man-Made Fibers and Blends since 1925

FIBERS

FABRICS

FINISHES

Fair-Tex Mills' REUBEN BERMAN— with $12,000 and 12 years he built an important knitwear firm— Story page 31

THIS MONTH'S SPECIAL FEATURES

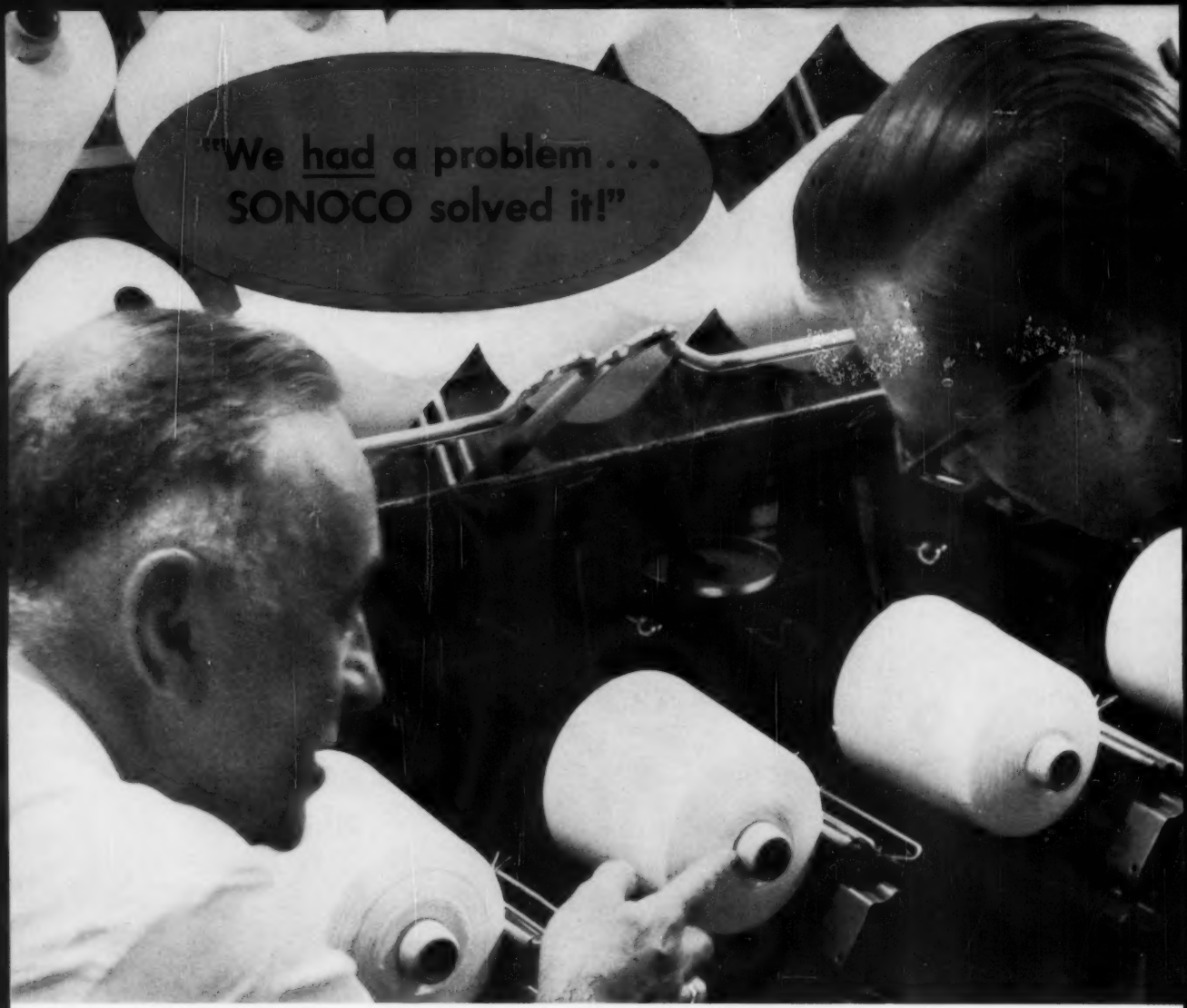
Forward strides in textile machinery

How one mill increased tricot output

Analyzing fabric streaks

Improved looper offered

AND 12 MORE EXCLUSIVE REPORTS AND TIMELY ARTICLES



THE NEED: New-type, lightweight shrinking cone for nylon.

The customer problem was three-fold: (1) the need for a 3°30′ cone that would provide uniform shrinking of nylon yarn, (2) eliminate staining of yarn in the process, (3) and, the elimination of yarn slippage in primary winding upon delivery.

Sonoco engineers solved this problem by first developing an especially constructed, lightweight 3°30′ cone that provided even, controlled shrinkage. Yarn staining was eliminated by the use of special Sonoco-manufactured white paper that was used as the stock for this cone. Finally, Velvet bands were applied at the cone point and base to prevent wasteful yarn slippage. The result: customer satisfied.

Only Sonoco, with its modern laboratory, engineering and production facilities, could solve this problem economically and efficiently. It is typical of countless cases where Sonoco leadership in the progressive development of textile paper carriers, based on 60 years of experience, has benefited the industry. Let Sonoco help you!

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Products for Textiles

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1985

CONQUEST IN TEXTILES

With increased research, the textile industry is uncovering many new, practical and economical uses for RANDO-WEB® structures. Already known is the fact that nonwovens permit an unlimited variation of fibre blends . . . that nonwovens are light in weight, washable, dry cleanable, smooth, soft, firm, supple, thick or thin, wrinkle resistant to a degree that cannot be achieved by conventional finishing techniques. All are important performance properties to manufacturers, retailers and consumers alike.

In the illustration are shown just a few of the many products using engineered nonwovens in whole or part.

HAT • DRESS • UNDERGARMENTS • BELT • POCKETBOOK • SUITCASE • COAT • SHOES • HANDKERCHIEF • TIE • UPHOLSTERY • DRAPES • RUG PAD •

FREE BULLETIN giving more detailed information on fibers used, webs made, end products. Write for your copy.

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Greenville, S. C.

MODERN
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December, 1958 Vol. 39, No. 12

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Established 1925

* * *

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* * *

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American Association of Textile Chemists and Colorists ..... Lowell Techn. Inst., Lowell, Mass.
American Association for Textile Technology, Inc. ..... 100 W. 55th St., New York
American Cotton Manufacturers Institute, Inc. ..... 1501 Johnston Bldg., Charlotte, N. C.
American Cotton Manufacturers Institute, Inc. Man-Made Fibers and Silk Division ..... 10 East 40th St., New York
American Rayon Institute ..... 350 Fifth Avenue, New York
Man-Made Fiber Producers Association ..... 350 Fifth Ave., New York
Silk and Rayon Printers and Dyers Ass'n of America, Inc. ..... 1450 Broadway, New York
Synthetic Organic Chemical Manufacturers Association ..... 41 E. 42nd St., New York
Textile Distributors Institute, Inc. ..... 469 Seventh Ave., New York

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ROBERTS ARROW WORSTED SPINNING

- Any Fiber or Blend
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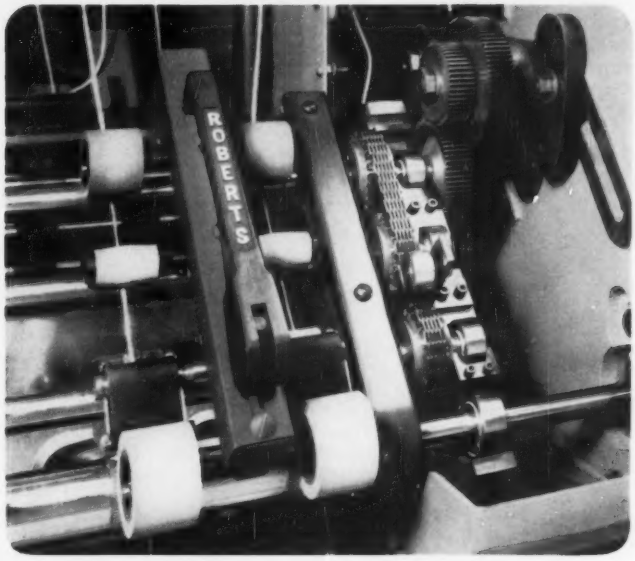
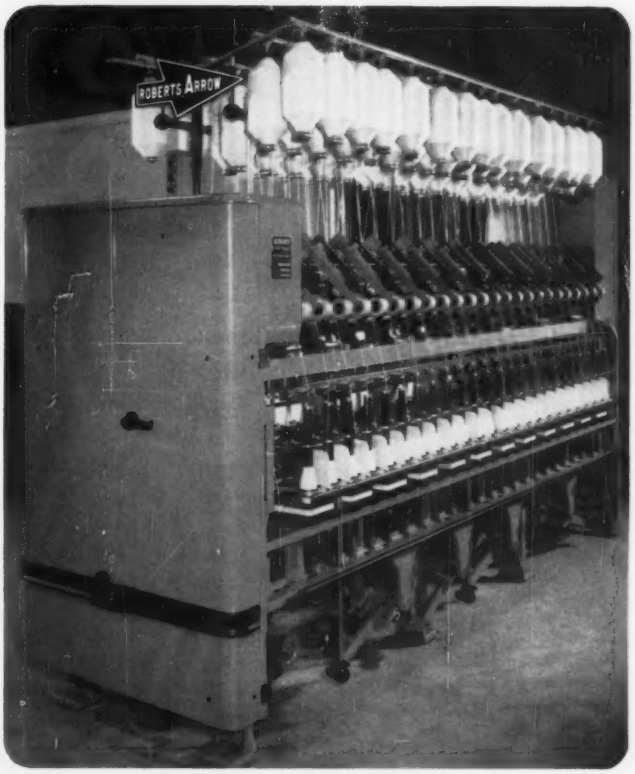
- Any Staple Length
  From Two to Eight Inches
- No Roll Setting Changes
  Needed at Any Time
- All Ball Bearing Construction
  For Smooth Operation



WITH ROBERTS *PermaSet* DRAFTING

ROBERTS ARROW



WM-2 ARROW *ShortFlo*

Rugged Chassis with Ball Bearings Throughout

Unitized Sectional Construction

Four-Roll Double Apron Drafting System

For Long-Staple Spinning, 100% or Blended

Drafts: 20 to 25 for Wool and Blends
25 to 50 for Synthetics and Blends

Front Roll Pressures from 90 to 120 pounds

UnitVac Power Suction Cleaning with Individual Removable Flutes

Roberts AeroCreel Handles Large-Package Roving

Simplified Reverse Twist Arrangement

Completely Adjustable Draft, Lay, and Twist Constants

One Master Set of Gears for All Changes

Actual mill tests have proved that the ARROW WM-2 Worsted Frame gives higher quality yarns with fewer ends down and more even running at higher drafts and higher front-roll and spindle speeds.

ROBERTS COMPANY

SANFORD, NORTH CAROLINA

New Polyester Resins

Goodyear Tire & Rubber Co. has established a Vitel Products Development department to handle problems of application and sales service for Vitel resins and Videne laminating film. Vitel, introduced by Goodyear earlier this year, is a polyester resin from which synthetic textile fibers can be spun. Viden, a member of the same polyester family, can be adhered under heat and pressure without adhesives to a wide variety of end products to provide protective and decorative finishes. C. W. Taylor, former process engineer in the Goodyear research division, is manager of the new Vitel department.

More Allied Caprolactam Monomer

The limited supply of caprolactam monomer, basic raw material for nylon 6 fibers and molding resins, will end when Allied Chemical's expanded facilities go on stream January 1, 1959, Allied reported recently. The expansion will give the firm's Hopewell, Va., plant an annual monomer capacity "in excess of 60 million pounds," according to Chester M. Brown, Allied vice president and president of the National Aniline Division. He said that the expansion will not only end the current shortage but Allied will be in a position "to agressively program our future marketing policies and seek new markets and new uses for caprolactam."

Switches to Nylon Tires

The three divisions of Cities Service, which operate more than 19,000 service stations in 38 states, have switched to nylon cord exclusively in passenger tires, according to Du Pont's Product Information Service. Cities Service said the switch permits simplifying inventories and economizing on warehousing expense.

Household Cotton Use

Cotton consumption in the household uses market increased 15% during the 10 years ending 1956 despite increasing pressure from competing fibers and materials, according to figures released by the National Cotton Council. Consumption in such uses rose by 323,000 bales during the decade, although cotton's share of the market declined slightly from 56% to 52%. Cotton scored its largest gain in drapery, upholstery and slip cover fabrics. Use of cotton declined in the production of blankets, curtains and bed ticking.

Dacron Towlines Liked

Based on test results with lines of Du Pont Dacron polyester fiber in alongside towing on one of its tugs, the New York Central Railroad has ordered Dacron ropes for three additional tugs, according to Du Pont's product information service. The tests conducted by the railroad's marine division were said to have shown that the head line of Dacron had given 256 days' service—13-to-one wear life over manila rope.

Italian Bisulfide Plant

Ground has been broken at Varedo, Italy (near Milan) by Snia Viscosa for a carbon bisulfide plant using a new process developed and licensed by Food Machinery and Chemical Corp. FMC's carbon bisulfide process, in use in this country at the firm's South Charleston, W. Va., plant, is a continuous, petrochemical type. The Varedo plant, to be completed by 1960, will use natural gas which is abundant in northern Italy. The Snia group produces rayon, viscose staple fiber and tire cord; nylon 6, "Rilsan" and other synthetic yarns, and plastics, pulp and machinery for textile and chemical plants.

for LOWER COSTS

TBM-4

Q-240-2

MOH'S hardness 9.5
Specific Gravity 3.80
Water absorption... 0.0 impervious
Safe operating temperature. °C1500 °F2800

HEANIUM® TEXTILE GUIDES

Test samples of HEANIUM stock guides will be furnished without charge.

Address sample requests to Dept. 9

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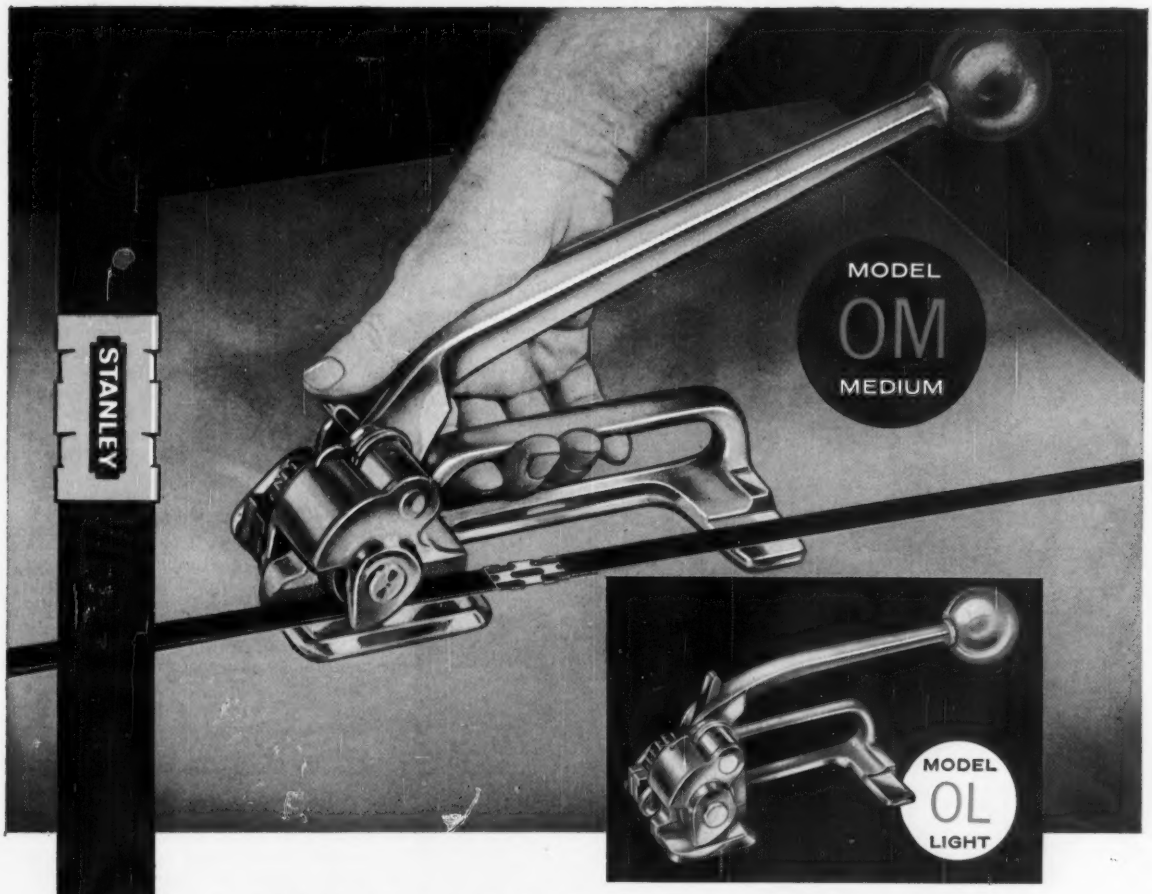
TBUSH-1



NEW STANLEY TIGHTENERS

Versatile...Lightweight...Sturdy—

The Stanley O Tightener sets a new standard of efficiency for tensioning steel strapping to the required maximum with a manually-operated steel strapping tool with unlimited take-up.

The O Tightener is versatile . . . used to steel strap packages of varying sizes, shapes and weights. Operates with equal ease and speed in any position. Easy to handle, and requiring fewer strokes for take-up, it reduces operator fatigue and saves time. It's a strap-saver too! Applying seals behind tensioning wheel cuts overlap to minimum required for maximum joint security. Tightening action is more positive because there are *two* holding pawls on tensioning wheel. Removal from strapping is instantaneous. The operator returns tightening lever to down position and slides tool from strapping.

FEATURES

- **Insertion, alignment of strapping is easy, quick.**
- **Light weight and balance assure handling ease.**
- **Sturdy construction means long life.**
- **Has unlimited take-up.**
- **Seals may be applied in front of or behind tensioning wheel.**

MODEL OL 3	3/8" STRAP
OL 4	1/2"
OL 5	5/8"
MODEL OM 5	5/8" STRAP
OM 6	3/4"

For more information, write STANLEY STEEL STRAPPING, Division of The Stanley Works, Dept. L, 1312 Corbin Ave., New Britain, Conn.

STANLEY INSURE IT – SECURE IT WITH STANLEY STEEL STRAPPING.

AMERICA BUILDS BETTER AND LIVES BETTER WITH STANLEY

STANLEY

This famous trademark distinguishes over 20,000 quality products of The Stanley Works—hand and electric tools • drapery, industrial and builders hardware • door controls • aluminum windows • stampings • springs • coatings • strip steel • steel strapping—made in 24 plants in the United States, Canada, England and Germany.

Textile Banking's Anniversary

Textile Banking Co., an old-line factoring company, celebrated its silver anniversary as a subsidiary of Commercial Credit Co. at a luncheon in New York October 2. Five women and 23 men, all with the company for the past 25 years, were guests of honor. Gerrit J. Popma, president, presented each with a three-month salary bonus and an extra week vacation. In its first year as a CCC subsidiary, Textile Banking business totaled $69,000,000; in 1957 it did over $500,000,000.

Robison Receives Award

James E. Robison, president of Indian Head Mills, Inc., has received the annual award of the Linens & Domestic Buyers of America, Inc., as "Manufacturer of the Year." The development by Indian Head of the first no-iron sheet marketed under the Pequot Easy-Care brand name, was cited as the significant factor in the selection of Robison.

Fabric Exhibition

Thirty leading textile companies cooperated on an exhibit, "New York Is The Textile Town," which opened November 17 at Union Dime Savings Bank, Avenue of the Americas at 40th St., New York City. The exhibit, designed to dramatize the uses of fabric for industry, the home and for apparel, is open to the public through January 16, on Mondays through Fridays, from 9 a.m. to 3 p.m.

New Hunter Plant

James Hunter Machine Co. plans to build a new, 35,000-square foot plant for its subsidiary firm, James Hunter, Inc., on a 20-acre tract eight miles south of Greenville, S. C. Decision to build the new plant is said to reflect increasing demand for Hunter's fiber blending equipment, including card feeds, pickers, openers and fiber meter blending systems.

Riggs & Lombard Expand

Cook Machine Co. and Parks & Woolson Co. are now part of Riggs & Lombard, Inc. thus combining engineering services and product line of three manufacturers of finishing equipment. Riggs & Lombard now offers a broad range of finishing equipment "from loom to delivery" for woolens, worsteds, cottons and synthetics.

Reevon Canadian Agent

Braided Products, Ltd., Montreal, Quebec, has been appointed Canadian sales agent for Reevon polyethylene and polypropylene yarns made by Reeves Brothers, Inc.

Reevon is a polyolefin yarn for outdoor use, including marine ropes, outdoor furniture webbing, automobile seat covers, swimming pool covers, wet and dry filter elements, upholstery yarns, and many other products for which nylon, saran and other synthetic fibers are used.

New Mount Hope Plant

The new addition to the plant of Mount Hope Machinery Co. in Taunton, Mass., is now in operation. The addition, which incorporates modern plant architecture, year-round air conditioning and indirect lighting, increases Mount Hope's shipping facilities, houses an enlarged engineering department, and provides much needed additional general office space.

New Composite Laminate

A composite laminated plastic made with nylon and asbestos and possessing good thermal insulating properties is described in a leaflet just reprinted by Taylor Fibre Co. The new material conducts 25% less from the surface to the interior than the most effective homogenous material tested, according to the article. *Reprints of the leaflet may be obtained by writing the editors.*

*13¾" and 21" diameter heads

MILTON BEAMS*
(for Nylon and rubber yarns)
GIVE YOU THE BIG BONUS OF

SUPER STRENGTH

The super strength of Milton's forged head Tricot and Raschel Beams is no idle claim—it's been proven by yarn producers, big mills and small mills alike!

They're light in weight, yet rugged in design to give true dimensional stability without objectionable deflection or distortion. Milton's forged, heat-treated aluminum alloy heads and extra heavy barrels become a one-piece beam by the continuous weld process first introduced in the field by Milton. Trapped ends of yarn or misalignment of keyways are eliminated because there are no mechanical joints!

You name the yarn . . . monofilament, fine denier, low turn or high twist—synthetics or rubber, Milton gives you true-running, well balanced beams to handle unprecedented yardages and extreme pressures!

WRITE FOR FREE BULLETINS . . . No. 49-A on Light Metal Beams and No. 54-S on Steel Beams. The Milton line includes warp beams for broad, narrow fabric, velvet and carpet looms, as well as light metal raschel, tricot and section beams.

Over a Quarter Century of Dependability in Yarn Beams

MILTON MACHINE WORKS, INC.

DESIGNERS • ENGINEERS • MANUFACTURERS

MILTON · PENNA.

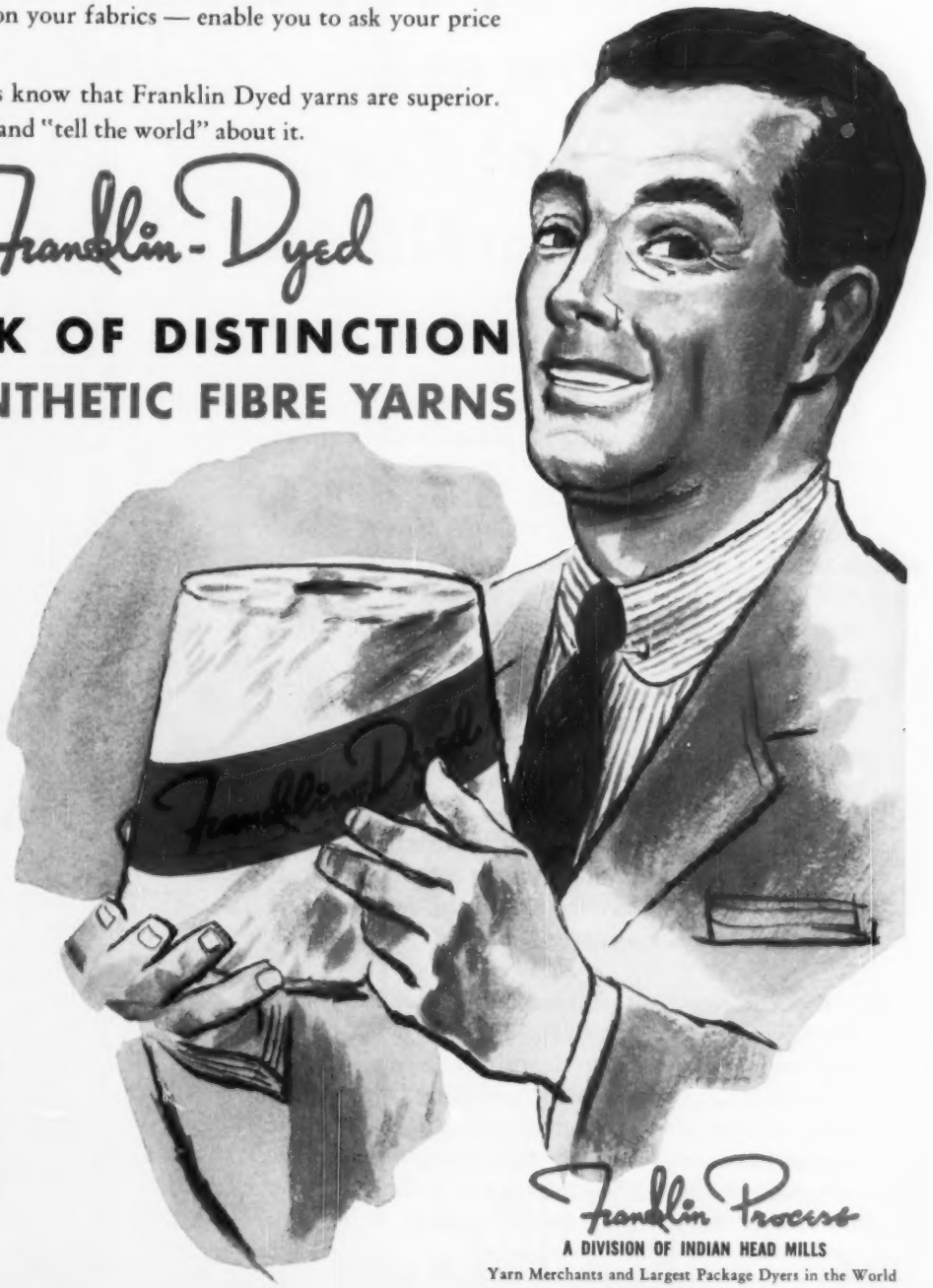
When your synthetic fibre yarns are Franklin Dyed, it sets them apart both in your mill and in your market. Users of Franklin Dyed yarns know that they run well in the mill, because of proper conditioning and proper winding; that the even dyeing reduces shutdowns and seconds (the Franklin spring package is the reason).

The even dyeing and thorough penetration of color also put the stamp of quality on your fabrics — enable you to ask your price with confidence.

Your customers know that Franklin Dyed yarns are superior. So use these yarns and "tell the world" about it.

Franklin-Dyed

A MARK OF DISTINCTION ON SYNTHETIC FIBRE YARNS



WE DYE

Hi-Bulk Orlon* yarns
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Orlon tow
•
Acrilan
•
Dacron**
•
Ban-Lon®
•
Helanca
•
Spun nylon
•
Spun rayon
•
Blends
•
Cotton
•
Wool
•
Worsted
•

All except Orlon tow are dyed on Franklin spring packages — the "secret" of uniform penetration and uniform shades.

Franklin Process

A DIVISION OF INDIAN HEAD MILLS

Yarn Merchants and Largest Package Dyers in the World
Providence • Philadelphia • Greenville • Chattanooga • Fingerville, S. C.
New York office—111 W. 40th St.
Providence Office—611 Turks Head Bldg.

55-8

*Trademark for Dupont's acrylic fibre

**Trademark for Dupont's polyester fibre

No. 9 in a series—how your Du Pont salesman is backed by many sales-building activities including Fiber Research, Technical Service, Fabric Development and Merchandising.

TV's master salesmen now sell Du Pont fibers to the millions!

Here you see Steve Allen and Du Pont's Henry Froehling, Textile Fibers Merchandising Director, checking over the storyboards (the TV counterpart of a script) which will help Steve sell Du Pont's better-living fibers to millions of viewers on his NBC Sunday-evening show.

To help sell Du Pont fibers day after day in the biggest advertising program in textile history, Du Pont has lined up a battery of master salesmen. In addition to Steve Allen, there's Dave Garroway, whose NBC "Today" program rates consistently as one of TV's most popular daytime shows; Douglas Edwards, CBS-TV's leading news commentator; Jack Paar, host of the NBC week night "Jack Paar Show"; and Arthur Godfrey, on the CBS radio network.

Added to this impressive array of talent are intensive spot TV and radio in key cities, scheduled to create maximum retail impact at peak fall and spring sales periods and to give Du Pont fibers saturation coverage in leading markets.

Maintaining its leadership in print advertising, Du Pont will continue to sell its fibers with advertisements in major magazines (mass magazines, women's service magazines, fashion magazines, home magazines, men's magazines), in Sunday supplements—wherever your customers look.

Broad in scope, yet pinpointed to the local buying level, this big new advertising program will help increase demand . . . build broader markets for all products made with Du Pont fibers.

This dramatically increased advertising program is just one of the ways Du Pont works to increase the market for its fibers and thus benefit you, its customer. Through your Du Pont salesman you, as a customer, also have access to a range of technical and merchandising information unique in the textile industry.

From raw fibers to retail sales

. . . Du Pont builds profits for you

PRODUCT and PROCESS NOTES FROM DU PONT

New type of polyester fiber—"Dacron" Type 64 A new type of "Dacron"* polyester fiber has been introduced to make possible greater fabric versatility in worsted—and rayon—type fabrics for men's, boys', women's and children's wear. Called "Dacron" Type 64, the new fiber has been engineered to permit styling of a new broad range of fabric types: sharkskins, Bedford cords, sheen and plain gabardines and other types characterized by a surface nap, such as mill-finished and unfinished worsteds, basket weaves and selected worsted—and rayon—type flannels. It is intended for use on the worsted and American, or rayon, spinning systems.

"Dacron" Type 64 shows marked improvement in resistance to pilling, a characteristic that permits production of the new fabric types. Regular "Dacron" polyester fiber has somewhat higher tenacity and abrasion resistance, but the new fiber has double the strength and greater abrasion resistance than the types of wool used in apparel. It offers greater dyeing versatility in that disperse colors and selected cationic dyes can be used. Ask your Du Pont salesman for more information about "Dacron" Type 64.

New low-shrinkage nylon yarns. These yarns, designated as Type 105, 205 and 305, have a lower and more uniform shrinkage compared with regular nylon yarns and are sold as zero twist on non-returnable tubes. Economic benefits are made available to the processor because of the improved uniformity of finished fabrics and the elimination of some preparatory processing steps in certain applications.

Among the many advantages of this new yarn for improved uniformity are: elimination of pirn taper barré, improved dyeing uniformity, reduction in filling bands, fewer spacing streaks, wider finished fabrics and improved yarn delivery from package.

Broadened acetate tricot yarn put-ups. Just introduced! 40 denier acetate on zero-twist tubes or beams. This is the finest commercially obtainable acetate yarn for tricot knitting. It's designed specifically for superior lingerie fabrics made on fine-needle, 32-gauge knitting equipment. And it's available on 42" beams with up to 1,360 ends per beam.

Tube size has been increased to an 8-pound, single-segment package for more economical warping; and beams are now being made available with 30" flanges which hold approximately twice the yardage of regular 21" flange beams.

Technical Information Bulletins. These bulletins contain detailed, practical information on Du Pont product and process developments. They cover fiber properties, mill processing, dyeing, finishing and fabrication. Refer to your copies frequently; they can save you time and money. To be sure you have all the bulletins you need—check with your Du Pont salesman or Technical Service representative.

*"Dacron" is Du Pont's registered trademark for its polyester fiber.

Enjoy the "Du Pont Show of the Month" on CBS-TV

DU PONT

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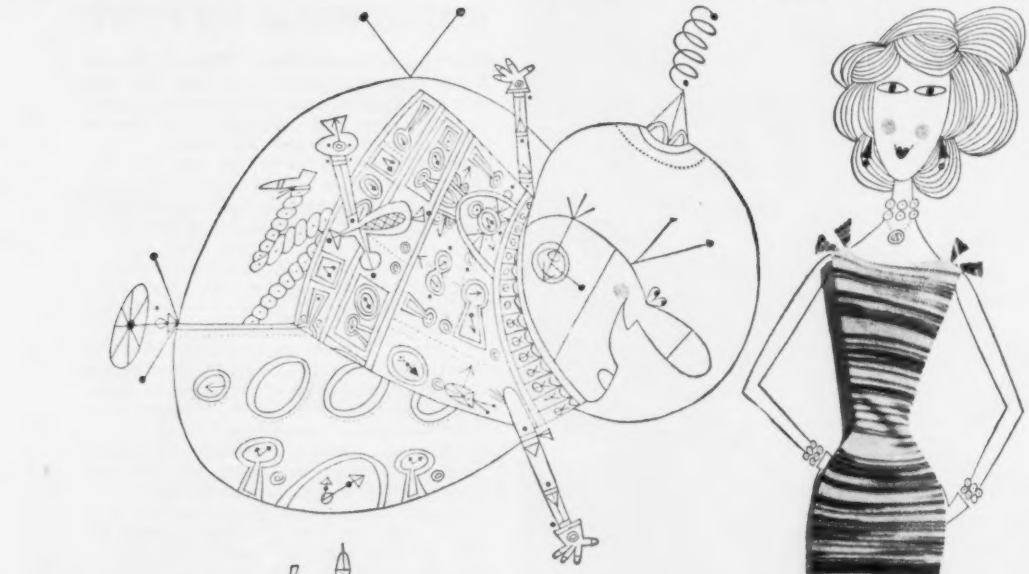
BETTER THINGS FOR BETTER LIVING
...*THROUGH CHEMISTRY*

THE MAN-FROM-MARS DISCOVERS THE WONDERS OF THE EARTH



Parfé

"Your skyscrapers don't impress me," says the Man-from-Mars on a flying trip. "Ours are in orbit around the sun.

But you could have knocked me over with an ICBM when I saw the new Parfé yarn! What Parfé would do to uplift the new Mars sack look, should happen to your own missile program!"

Parfé is Bemberg's proud new achievement! Earth-shattering is the word (and soon perhaps, Mars-shattering, too!).

Color is spaced intermittently along the entire length of Parfé yarn, introducing a new color dimension in fashion. It comes in two effects: a long span of color with wide space intervals and a short span of color with narrow space intervals. And this color is as fast to sun, laundering, and atmospheric conditions as solution-dyed shades.

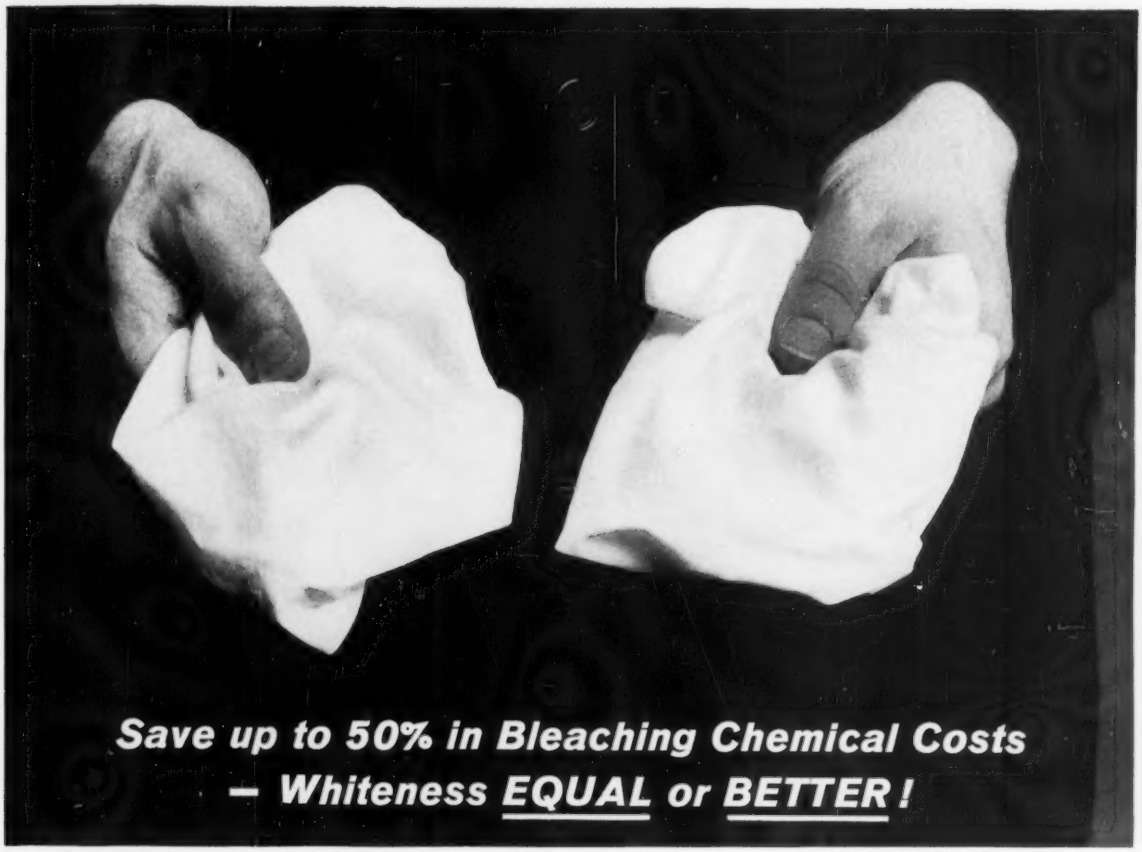
Parfé can be used alone, in combination with other yarns, with Bemberg novelty yarns, overdyed, or overprinted. Feature it in dress, blouse, and sportswear fabrics (woven or knitted) and in decorative fabrics for the home.

Call LExington 2-3520... and see the yarn wonder of the world!

Bemberg®
ARISTOCRAT OF RAYON YARN

"PARFÉ" IS AMERICAN BEMBERG'S TRADE NAME FOR CUPRAMMONIUM RAYON YARN.

AMERICAN BEMBERG · Main Office: 261 Fifth Avenue, New York 16, N. Y. · Plant: Elizabethton, Tennessee



...with the SOLVAY Activated Hydrogen Peroxide Bleaching Process for Cotton

By using the SOLVAY Activated Hydrogen Peroxide Bleaching Process for Cotton, you can save up to 50% in bleaching chemical costs and, at the same time, gain a number of measurable advantages.

You get whiteness that equals or surpasses the results you're now getting. You increase purity, reduce color reversion tendencies and ash and metals content, and raise absorbency rates—even with moderately hard water —and without harm to the cloth.

This method has been thoroughly tested and is now in successful use in full-scale commercial operation. Application for a patent covering the SOLVAY Activated Hydrogen Peroxide Bleaching Process has been filed. The process is available to bleachers under a royalty-free license.

Write now! Full details of process, techniques, results!

Sodium Nitrite • Calcium Chloride • Chlorine • Caustic Soda • Caustic Potash Chloroform • Potassium Carbonate • Sodium Bicarbonate • Vinyl Chloride • Methyl Chloride • Ammonium Chloride • Methylene Chloride • Monochlorobenzene Soda Ash • Para-dichlorobenzene • Ortho-dichlorobenzene • Carbon Tetrachloride Ammonium Bicarbonate • Snowflake® Crystals • Aluminum Chloride • Cleaning Compounds • Hydrogen Peroxide • Mutual Chromium Chemicals

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SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N. Y.

SOLVAY branch offices and dealers are located in major centers from coast to coast.

SOLVAY PROCESS DIVISION
61 Broadway, New York 6, N.Y.

☐ Please send me without cost your brochure, "SOLVAY Activated Hydrogen Peroxide Bleaching Process for Cotton."

☐ Have one of your representatives call to discuss it.

Name_____

Position_____

Company_____

Phone_____

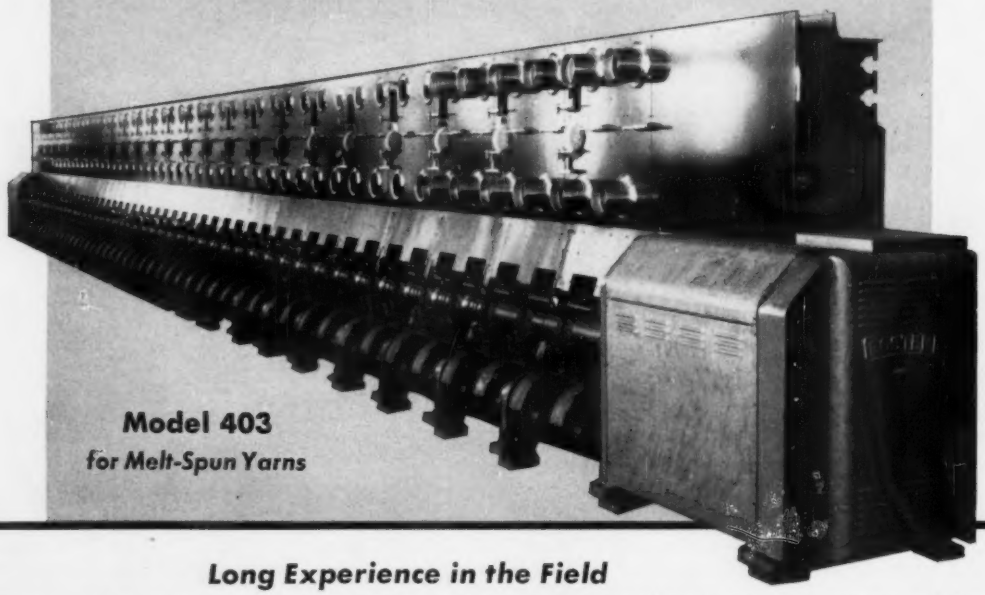
Address_____

City_____ Zone____ State_____

BJ-12.

FOSTER TAKEUP WINDERS

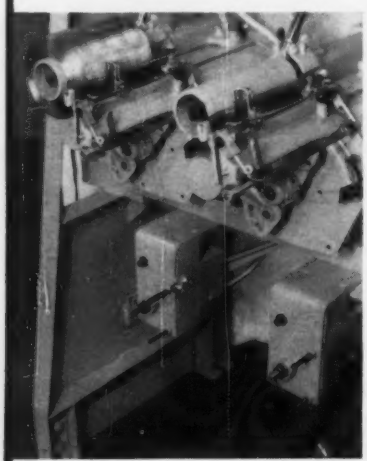
For Melt-Spun, Wet-Spun and Dry-Spun Synthetic Fibre Yarns



Model 403
for Melt-Spun Yarns

Long Experience in the Field

We have had long experience in the design and manufacture of takeup winders for melt-spun, wet-spun and dry-spun synthetic fibre yarns. We have made and are now making machines of this type for leading producers of synthetic fibres. We illustrate herewith the two types of machines and describe briefly how they operate.



Tensiomatic Winder
for Wet-Spun and Dry-Spun Yarns

MODEL 403

For continuous winding of synthetic melt-spun yarns direct from spinneret at speeds up to 6000 ft. per minute. Yarn (15 to 1200 drawn denier) travels from spinneret down through heated chimney over finish rolls, with ceramic guides under each to maintain proper arc of contact, to a series of Godet feed rolls, delivering the yarn to a reciprocating traverse guide (actuated by independently driven traverse cam) and to the package core, which is driven by a chrome plated steel roll. Pressure of package on roll automatically adjusted as its weight increases. One 5¼" traverse package, two 3¼" traverse packages, or four 1" traverse packages per holder. Drive roll shaft and feed rolls driven by separate synchronous motors. Ribbon wind is eliminated. 16" gauge, 56 spindles with 2 independent drives (28 spindles each).

TENSIOMATIC WINDER

For continuous winding of wet-spun or dry-spun synthetic yarns direct from spinneret to 6" traverse packages (1 or 2 packages per position) or to 10" traverse packages weighing up to 30 lbs. Speeds up to 450 feet per minute. Precise wind machine. As package builds up and yarn speed increases, speed of motor is automatically and proportionately decreased by means of dancer rolls and an electronic control device.

Our Engineers Will Work With You

If you are developing a new synthetic fibre, it will pay you to consult our engineers regarding your winding requirements. They are familiar with your problems and can custom design a machine to your requirements.

FOSTER MACHINE COMPANY

A Yarn Winder for Every Purpose

Westfield, Massachusetts, U.S.A.

Southern Office — Johnston Bldg., Charlotte, N. C. • Canadian Representative — Ross Whitehead & Co., Ltd., 1475 Mountain St., Montreal, Que. and 100 Dixie Plaza, Port Credit, Ontario
European Representative — Muschamp Textile Machinery Ltd., Keb Lane Bardsley, Oldham, Eng.

338-8

switch to

Caro-Gant

...the original 100% active warp dressing

Caro-Gant—tops in warp dressing—is a blend of specially processed fats, binding agents, penetrants and anti-mildew agents with absolutely no inert ingredients . . . every ounce of Caro-Gant works to make your warps stronger and more elastic, whether the weave is coarse or fine.

Caro-Gant disperses readily in hot starch solutions, contains no metallic chlorides and dissolves readily in kiering liquors or other boil-out mediums—giving you maximum economy, efficiency and quality.

Hart Products manufactures a wide range of textile chemicals for the textile industry.

Send for complete information on Caro-Gant and other Hartex products today.

the Hart Products Corporation

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Works and Laboratories, Jersey City, N. J.

Hart Products Company of Canada, Ltd., Guelph, Ontario

TEN-O-FILM starches and synthetics go hand in hand

Looking for a starch that's compatible with the adjuncts you use in warp sizing synthetics? Ten-O-Film is your answer. This chemically modified starch derivative was specially developed to simplify and improve processing of both the new synthetic and natural fibers.

Ten-O-Film brings new economies to sizing operations. It requires less boiling time than conventional starches: Ten-O-Film reaches stable viscosity in 30 minutes and remains stable even under prolonged heating and circulation. Desizing can be carried out more readily, hence more economical dyestuffs can be used and with greatly reduced bleeding. The clarity of Ten-O-Film sizes will not mask the bright or pastel shades so widely used in modern fabrics. In desizing, the soap boil-off may sometimes replace the enzyme desizing process.

These are only a few of the advantages of using Ten-O-Film starches. Our technical representative will give you the complete Ten-O-Film story. He has tried and tested formulations for all popular synthetic and natural fiber blends.

The technical facilities of the world's largest corn processors await your call. These facilities include laboratories devoted to continuing research in textile technology, as well as unmatched sources of firsthand textile knowledge and experience. Our technical representative will be glad to help you take advantage of these resources. For full information, call our nearest sales office or write direct.

TEN-O-FILM® starches

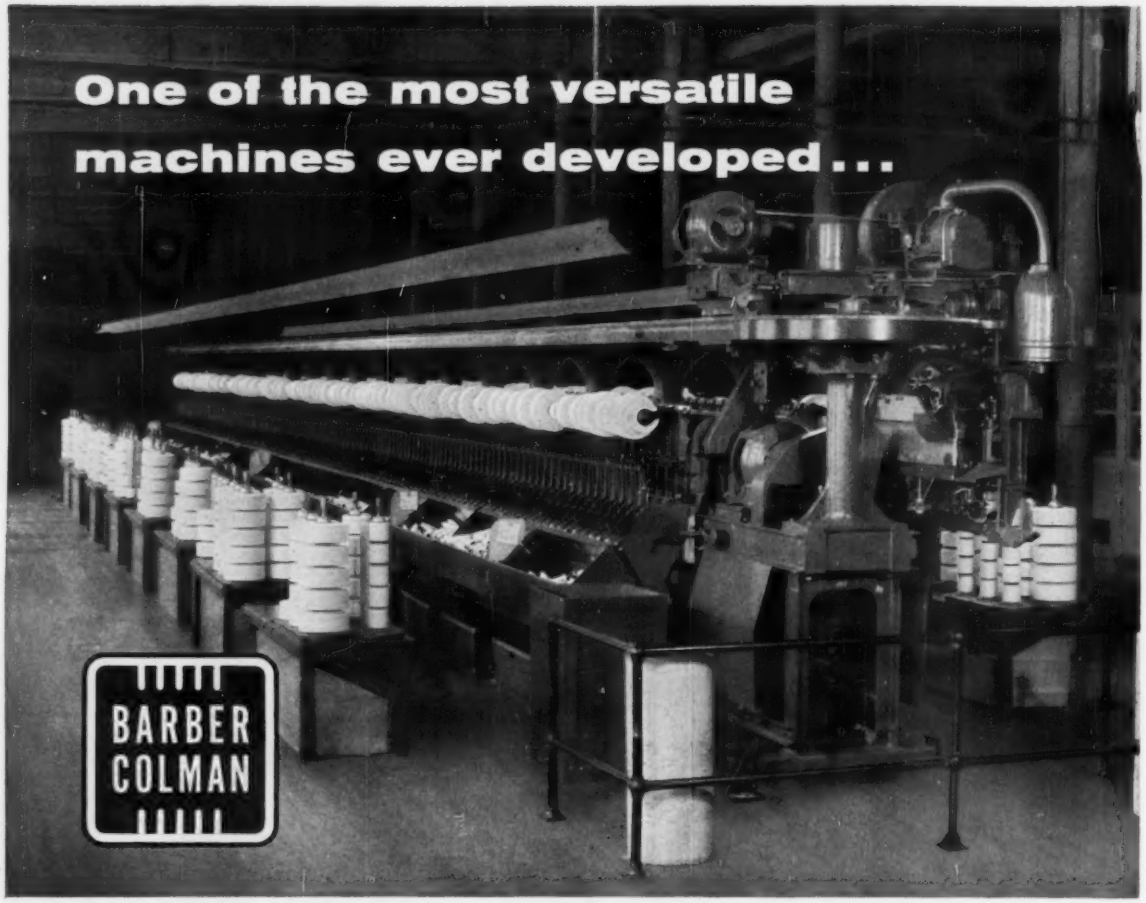
Fine products for the Textile Industry: CLARO® · GLOBE® EAGLE® · FOXHEAD® · TEN-O-FILM® starches · GLOBE® dextrines

CORN PRODUCTS SALES COMPANY · 17 Battery Place, New York 4, N. Y.

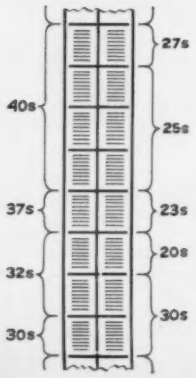
Penford Gums THE **MODERN** WARP SIZING FOR **MODERN** WEAVING

Penford Gums provide exceptional warp yarn protection in weaving all modern fabrics — Viscose, Cotton, Worsted, Acetate, Nylon, Dacron, Acrilan, Orlon, Dynel, Zefran and blends.

There is a Penford Gum that will fit your warp sizing requirements. Penick & Ford Technical Sales Service Engineers will gladly assist you by recommending exact formulations and will provide continuous technical service. Write us today.



MULTIPLE-COUNT SPOOLER



Sale yarn mills and producers of piece goods that use various counts of different mixtures will find that this machine can be a very profitable investment. It is the famous and familiar Barber-Colman Automatic Spooler, but now you can wind . . .

A DIFFERENT COUNT EVERY 9 UNITS

The machine is built in "bays" between posts that support the traveler track, with nine bobbin-to-cheese winding units in each side of each bay. Empty bobbins, instead of being conveyed to a single sorting table, drop into separate boxes under each bay, thus enabling each group of nine units to be loaded and run with a different yarn. Starter boxes and cheese tables are set up individually for each bay. The only limitation is that the extremes of different counts on the machine at any one time must fall within the range of the knotter in the traveler. Changes can, of course, be readily made at any time, and any number of bays can be run on identical yarns. (Note the dividers between the bobbin trays on the machine shown above.) *Full details on the many adaptations of this versatile machine can be obtained from your Barber-Colman representative.*

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • WARP DRAWING MACHINES

BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

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Batliboi & Company Forbes Street, Fort Bombay, India	J. Rabasa Isabel la Catolica 45-913 Apartado 7348 Mexico D.F., Mexico	Industria e Comercio de Maquinas S. A. Avenida Rio Branco No. 50, Rooms 1201/3 P. O. Box No. 63 Rio de Janeiro, Brazil	Do-Yei Shoji Kabushiki Kaisha Atlas Building (7th Floor) 11, Bingo-machi, 3-chome, Higashi-ku, Osaka, Japan	Associated Agencies (M'cr.) Ltd. Piccadilly House 11 Piccadilly Manchester 1, England	Associated Agencies (M'cr.) Ltd. 27 Kothari Building Napier Road Karachi 2, Pakistan

BRIGHTER LIFE AHEAD

for Nylon with **NEW**

Nylomine dyestuffs by AHCO

You can look for brighter nylon yarns and fabrics with new NYLOMINE dyestuffs by AHCO.

NYLOMINE dyes produce a wide range of outstandingly brilliant shades — shades which have good wet fastness and excellent fastness to light.

NYLOMINE dyes possess excellent building-up properties.

NYLOMINE dyes are easy to apply.

Nylomine

Yellow GS
Orange GS
Brown B
Scarlet B
Red 2BS
Blue GS
Blue R
Dark Blue B
Black BS

DYE on loose fibers, slubbing, yarn or piece goods.

PRINT on Nylon

Ask for more information from your AHCO representative.

AHCO DYES

ARNOLD, HOFFMAN

Providence, Rhode Island
Arnold, Hoffman & Co., Inc.
Est. 1815
A Subsidiary of Imperial Chemical Industries, Limited, England

"The word Nylomine is a trademark, the property of Imperial Chemical Industries, Limited, England"

460-S

Picture of a mill man making equipment changes to run

COTRON

Believe it or not, this is just about all you have to do to change over to Cotron fabrics, blends of cotton and Avisco® rayon. Blending can be handled on your present equipment with only minor adjustments. In fact, for most fabrics, blending with Avisco rayon can be easily accomplished at the draw frame.

For the new booklet, "Cotron Technical Bulletin", which gives complete information on manufacturing Cotron fabrics, write to our Staple Sales Division.

AMERICAN VISCOSE CORPORATION
350 Fifth Avenue, New York 1, New York

*Trademark of American Viscose Corporation for fabrics of cotton and Avisco® rayon.

Stunning new fabric finish

that has buyers enthusiastic . . . quickly achieved through processing on the Turbo Electro-Finisher

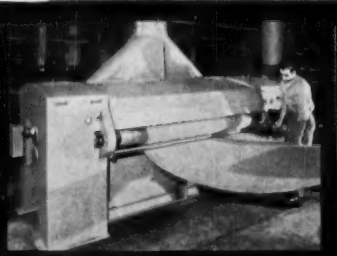
Buyers, always on the look-out for something new, like the luxury finishes achieved on the Turbo Electro-Finisher.

Your fabrics develop an attractive new finish . . . a soft, dramatic sheen . . . a lavish hand, giving more appealing characteristics to your woolens, wool blends, acrylics, alpacas, mohairs and cashmeres.

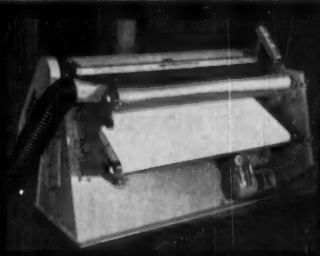
As the fabric is fed into the Turbo Electro-Finisher, it passes over an electrically-heated cylinder equipped with special grooves which separate and straighten the fibers before they are polished. Varied characteristics can be imparted to the fabric by changing the speed, pressure or temperature of the equipment. Being almost completely automatic, the Turbo Electro-Finisher assures uniform finishing.

See for yourself the remarkable change in your fabrics after processing on a Turbo Electro-Finisher. Send samples for finishing. Or, better yet, *bring* your fabrics to Lansdale and watch the magic of Turbo Finishing. Call Ulysees 5-5131 or write today

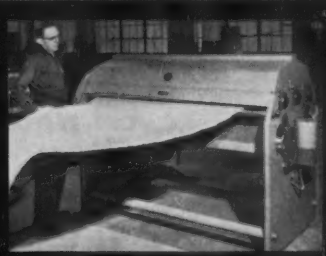
TURBO MACHINE COMPANY
LANSDALE, PA.



TURBO ELECTRO-FINISHER —
for new luster, new fabric effects.



TURBO SHEARER —
for heavy-duty and final shearing.



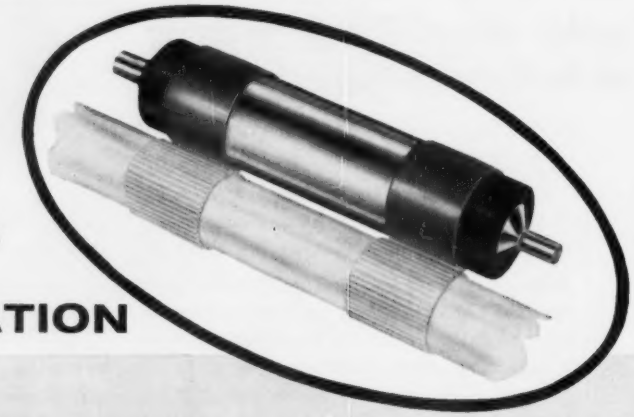
TURBO WET APPLICATOR —
for applying silicone and chemical finishes.

NEW MagneTrol

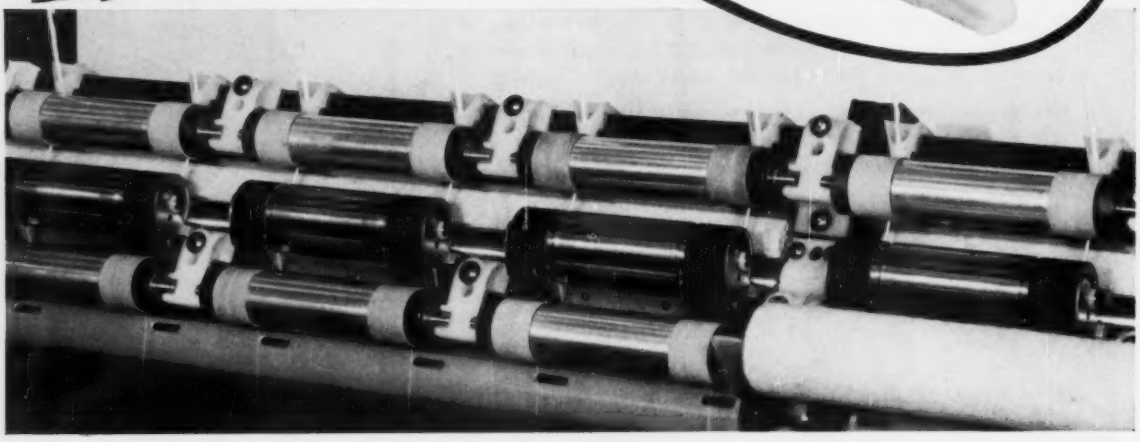
pressure system for drafting

by SACO-LOWELL

NO CAP BARS
NO SADDLES
NO STIRRUPS
NO LEVERS
NO SPRINGS
NO WEIGHTS



Plus **NO LUBRICATION**



The MagneTrol Pressure System by Saco-Lowell uses the force of magnetic attraction to produce required pressures — does away with all auxiliary equipment. Most important of all, the MAGNETROL System requires NO LUBRICATION above the roller beam.

- **NO LUBRICATION ABOVE THE BEAM**
- **EXCEEDINGLY FEW COMPONENT PARTS**
- **EFFICIENT CLEANING ACTION OF THE CLEARERS**
- **ELIMINATION OF PROBLEM OF WORN NECKS ON STEEL ROLLS**

MAKES ANY DRAFTING ELEMENT WITH MAGNETROL THE CLEANEST MOST EFFICIENT EVER DEVELOPED

THE STANDARD OF QUALITY AND PERFORMANCE Since 1813

SACO-LOWELL TEXTILE MACHINERY DIVISION

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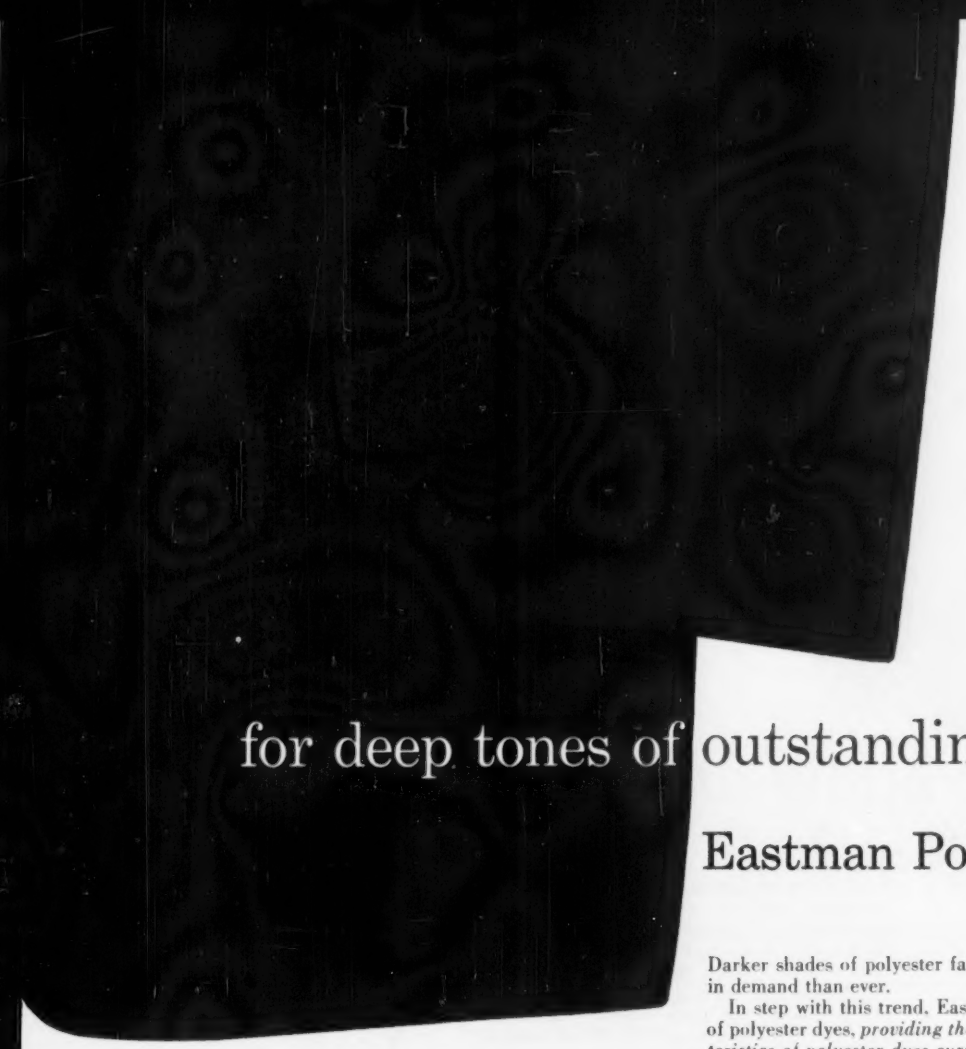


*Dark Navy**

for deep tones of outstanding fastness

Eastman Polyester Dyes

Darker shades of polyester fabrics and their blends are more in demand than ever.

In step with this trend, Eastman offers an expanding series of polyester dyes, *providing the best all 'round fastness characteristics of polyester dyes currently available.*

Specifically developed for use with polyester fibers, Eastman Polyester Dyes exhibit outstanding fastness to washing, light, sublimation, crocking, perspiration, dry cleaning and wet pressing.

Equally important are their excellent processing characteristics... good build-up, good exhaustion and outstanding leveling properties. Thus, darker shades of navy, brown and grey are economically obtained.

Dyeing with Eastman Polyester Dyes is easily accomplished with carriers or under pressure at elevated temperatures. Fibers can be readily dyed in tow, tops, stock, or fabric forms. Fabrics of polyester filament can be conveniently dyed in jigs. Fabrics woven of spun polyester yarns alone or blended with cotton, viscose or wool can be easily dyed in dye-becks.

Make sure you are taking full advantage of this outstanding line of polyester dyes.

Eastman Polyester Yellow RL
Eastman Polyester Yellow W
Eastman Polyester Yellow 5R
Eastman Polyester Orange 3RLN
Eastman Polyester Red B
Eastman Polyester Red 2G
Eastman Polyester Dark Red FL
Eastman Polyester Blue GR
Eastman Polyester Blue GLF
Eastman Polyester Blue BLF
Eastman Polyester Blue 3RL
Eastman Polyester Navy G
Eastman Polyester Black RB

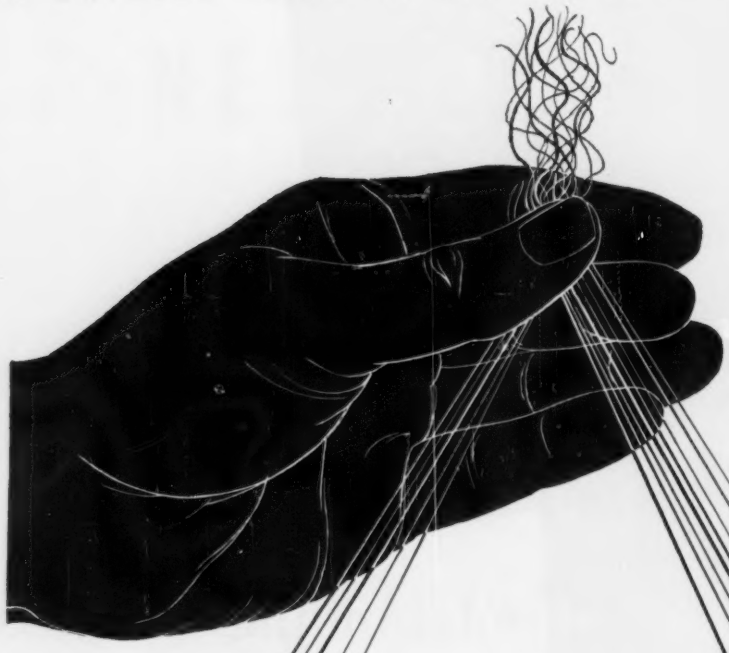
*Try this formula on your next dark navy dye lot.

4% Eastman Polyester Blue 3RL
6% Eastman Polyester Blue BLF
0.6% Eastman Polyester Orange 3RLN
5 g./l. o-phenyl phenol type carrier
Material: Polyester
Bath Ratio: 30:1
Dyed at Boil

Eastman Polyester Dyes

Eastman Polyester Dyes are sold in the United States by **EASTMAN CHEMICAL PRODUCTS, INC.**, subsidiary of EASTMAN KODAK COMPANY, in Kingsport, Tennessee; Lodi, New Jersey; and Greensboro, North Carolina. On the **West Coast** through WILSON MEYER CO., San Francisco, Los Angeles, Portland, Seattle, Salt Lake City. In **Canada** through CLOUGH DYESTUFF CO., LTD., St. Laurent, P.Q.

A SKILLED HAND IN CHEMISTRY . . . AT WORK FOR YOU



NOPCOSTATS*

make your fibers behave

A unique series of fiber lubricants for synthetic fibers and blends†

Nopco, in a cooperative effort with the fiber producers and the tow-to-top convertors, has developed a series of antistatic lubricants called Nopcostats which will meet all synthetic fiber finish needs.

The Nopcostats are a set of tools that allow you to change the draw characteristics of your fibers in order to achieve the necessary balanced processing requirements. They are a highly potent series of lubricants which accomplish results in amounts of from ¼ to 1% o.w.f.

*Nopcostat is a registered trademark of Nopco Chemical Company.

†Nopcostats are also available for wool fibers and yarns and for yarns processed on the woolen and worsted systems.

	Products			
	Nopcostat AS-40	Nopcostat LV-40	Nopcostat 2152-P	Nopcostat 2152-X
	Fibers			
	Acetate Viscose Arnel[1]	Acrylic types such as Orlon,[2] Dynel,[3] Acrilan,[4] etc.	Nylon Dacron[2]	Nylon Dacron
Interfiber friction	Low	Medium	High	High
Fiber-to-metal friction	Medium high	Medium	Low	Low
Antistatic effect	Excellent	Excellent	Excellent	Excellent

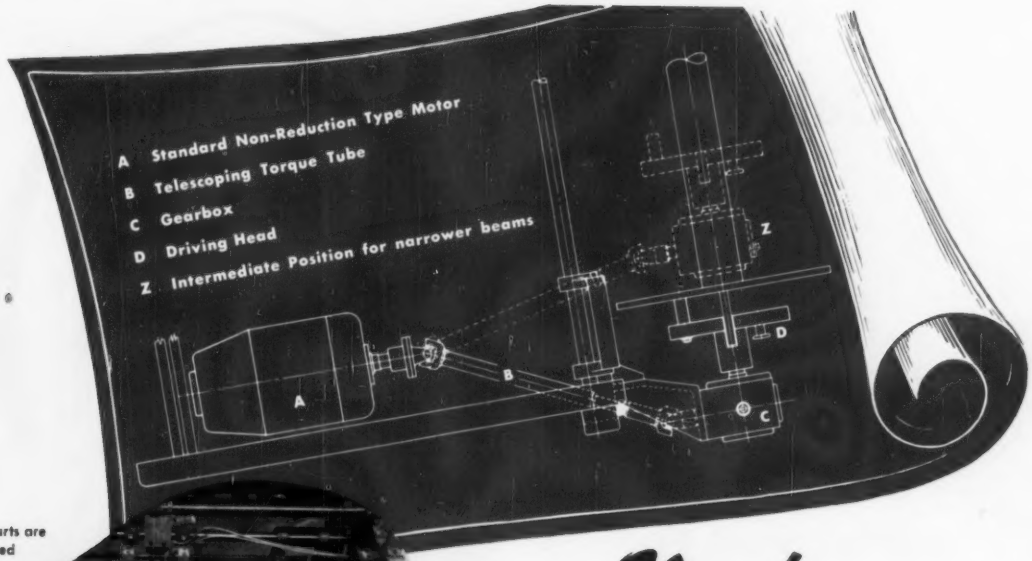
[1] Registered trademark of Celanese Corp. of America
[2] Registered trademark of E. I. du Pont de Nemours & Co., Inc.
[3] Registered trademark of Carbide and Carbon Chemical Co.
[4] Registered trademark of Chemstrand Corp.

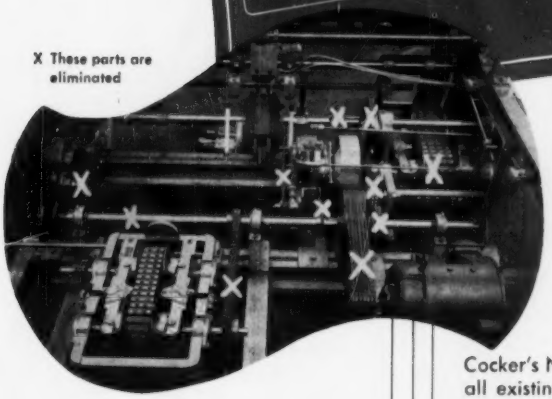
When you want a specific lubricant for a specific job, you will find the right formulation in the Nopcostat series. Write today to Nopco, a pioneer in fiber lubricants to obtain a new bulletin describing the complete Nopcostat line and methods of application. Nopco Chemical Company, Textile Chemicals Division, 60 Park Place, Newark 2, N.J.

NOPCO®

Vital Ingredients for Vital Industries

Plants: Harrison, N.J. • Richmond, Calif. • Cedartown, Ga. London, Canada





X These parts are eliminated

New!

The World's Finest Slasher Head Drive

Better Simpler Less Expensive

Cocker's New Slasher Gear Head Drive is a tremendous improvement over all existing drives. It eliminates troublesome belts, chains, and sprockets. These are replaced with a telescoping torque-tube drive* with two universal joints which transmits positive power to a gear reducer which drives the beam driving head direct. This is the same type drive which is used in the finest automobiles and on expensive machine tools.

LOWER INITIAL COST—LESS MAINTENANCE This new design permits the use of a basic 5 HP-DC motor of simplest design and eliminates the present expensive gear boxes, thus reducing initial cost materially. Simplified driving mechanism operates smoothly with very little maintenance. Only five places to lubricate. Working parts are easily accessible. The same drive will be used on all type Cocker Slashers, thus permitting "off-the-shelf" replacement parts service.

PROJECTION SPINDLES ELIMINATED Can safely run beams varying as much as 50 inches in width without protruding spindles and with no sprockets or chains to slide in and out.

VIRTUALLY ELIMINATES NOISE

NEW CLEAN MODERN DESIGN

All other features of the superb Cocker head end remain the same as before —rugged construction, complete and accurate push button controls, full instrumentation, new, fast and simple beam doffing. Also available with Cocker's patented Beam Drive which provides constant adjustable tension regardless of speed or load. Speeds up to 150 ypm and 20% to 25% more yarn per loom beam with production rates of over 1500 lbs. per hour.

Write for full information today.

*Patent Applied For

In Canada and New England: Contact W. S. Clark, Montreal Canada, Melrose 1-3751
Plant and Offices: Ranlo, N. C. Mailing Address: Gastonia, N. C.

THE LEADER AROUND THE WORLD

COCKER Machine and Foundry Co., Gastonia, N. C.

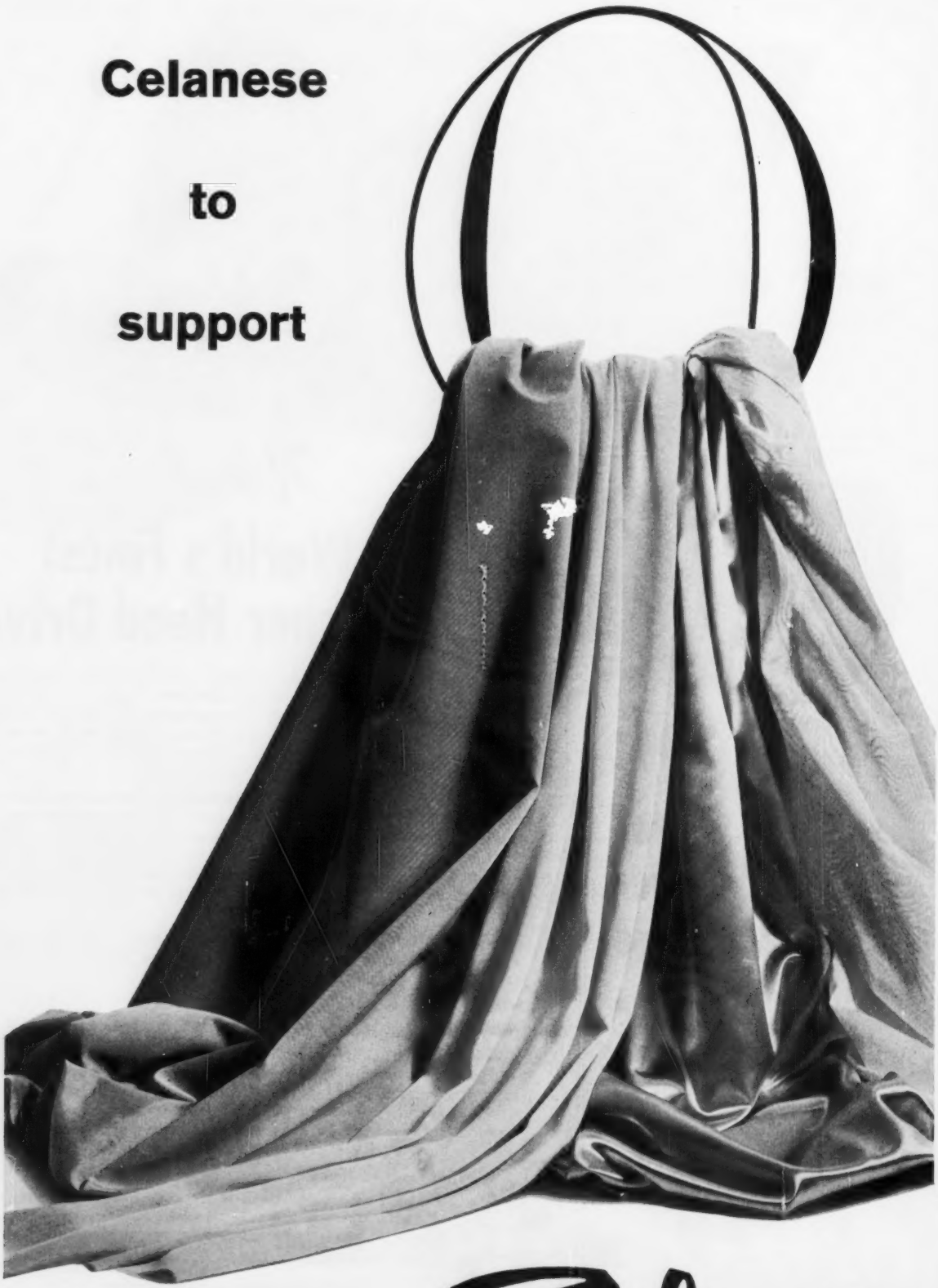
WORLD'S LARGEST DESIGNERS AND BUILDERS OF COMPLETE WARP PREPARATORY EQUIPMENT

For immediate action on parts or service — nights, weekends or holidays — call EDison 5-5061, Charlotte, N. C.

Celanese

to

support



Celanese

pulent fabrics for fall '59

Satins, crepes, failles and moires important trend setters

All advance fashion reports indicate a strong return to peaus, brocades, satins, crepes, failles, moires, and other opulent look fabrics. This is true both in Paris and New York.

Because Celanese acetate and Celaperm acetate are vital to these highly styled fabric constructions, Celanese will support all opulent look fabrics containing Celanese fibers with a broad promotion for fall '59. This promotion is designed to help sell at all levels—mill, converter, cutter, and retailer.

What does this mean to you?

Celanese will help promote your opulent look fabrics by doing the following.

1. Obtain from your converter customers a list of all manufacturers sampling your opulent look fabrics.
2. Supply all manufacturers with showroom displays and hang tags for their garments.
3. Show samples of these fabrics to hundreds of manufacturers through the Celanese Market Liaison Department.
4. Supply all manufacturers with a list of the participating retail stores.
5. Supply your converters with showroom display pieces showing their participation in the promotion.
6. Invite magazine, trade paper, and newspaper editors to see your fabrics at the Celanese Fabric Library.
7. Line up about 100 important stores in key U. S. cities as retail headquarters for the promotion. This means newspaper ads, windows, displays, and fashion shows on garments cut from your fabrics.
8. Supply all participating store buyers with a complete resource list of manufacturers in time for Market Week.
9. Advertise opulent fabric categories to the manufacturers.
10. Supply all participating retail stores with a complete selling kit.
11. Send Celanese representatives to stores to hold sales training meetings, narrate fashion shows, and act as retail consultants to consumers.
12. Run multiple page consumer ads featuring merchandise made from opulent look fabrics, complete with retail store listings.

How can you participate?

All you have to do to participate is to make opulent fabrics containing Celanese yarns, and supply Celanese with the names of the converters buying these fabrics.

What fabric categories are included?

Taffetas, satins, peaus, crepes, failles, ottomans, and brocades. Contact your Celanese representative for further information:

DISTRICT SALES OFFICES:
180 Madison Ave., New York 16, N. Y.
Room 10-141 Merchandise Mart, Chicago 54, Illinois.
P. O. Box 1414, Charlotte 1, N. C.
200 Boylston St., Chestnut Hill 67, Mass.
819 Santee St., Los Angeles, Calif.

EXPORT SALES: Amcel Co., Inc., and Pan Amcel Co., Inc.
180 Madison Ave., New York 16, N. Y.

IN CANADA: Chemcell Fibres Limited,
1600 Dorchester Street West, Montreal, Quebec.

Celanese® Celaperm®

contemporary fibers

#3 of a series:

caprolan®

TEXTURED YARN SEMINAR

2 WAYS TO AVOID CREELING PROBLEMS

Is your mill one of the forward-thinking plants now running textured filament yarns? Then you know the importance of this fact:

FACT: Textured Filament Yarns And Spun Yarns Are Not The Same

Consequently, your ordinary methods of running spun yarns need certain adaptation to attain maximum success with the amazing new textured filament yarns. For example: Vertical creeling of textured filament yarns can lead to a considerable amount of sloughing off if proper precautions are not taken.

Because the fiber ends are essentially smooth, they will slide down the body of the package when the yarn is relaxed. As the machine starts up again and the slack is eliminated, the cone may be lifted off the arbor. You can easily avoid this problem by either of these simple techniques:

1. One effective way to prevent sloughing is to place a piece of carpet under the yarn package with the bottom of the cone passing through the carpet and the coned yarn resting on the pile of the carpet. Thus, the relaxed yarn will rest on the carpet and will not be able to unseat the cone.

2. Another method is to re-install the arbors so that the cones will be horizontal rather than vertical. The relaxed yarn will then run freely from the package without sloughing. Post tension devices will help control uniform yarn delivery.

We are eager for you to get the best possible results when adapting Textured Caprolan* to your product lines. Our technical service, end-use development and fiber application laboratory staffs are always available to help you and to answer any questions. Call us any time.

Trade Mark—Allied Chemical's polyamide fiber

Allied Chemical

Fiber Sales and Service *National Aniline Division*
261 Madison Avenue, New York 16, N. Y.

MODERN TEXTILES
Magazine

Publisher's Viewpoint

The lengthening list of man-made fibers

The number of man-made fibers available to American mills continues to multiply. In the past several years all of us have been obliged to expand our vocabularies to include such new fiber names as Darvan (Goodrich), Zefran (Dow), Verel (Eastman), and Creslan (American Cyanamid.) These fibers came to make longer an already long list.

However, long as the list may be, it is by no means ended. For recent months have brought a new crop of additions. There is Kodel, a new polyester of Eastman Chemical; and then there are Corval and Topel, Courtaulds' "new man-made cross-linked cellulosic staple fibers." And in the area of the cellulosics we must add Tyrex, the new tire yarn some rayon producers have united to promote. Finally, the latest of the latecomers among new fibers is Teron, the new polyester of Celanese. During the coming year there may be several more new fibers announced—perhaps in the area of the polyolefins in which there is so much interest today.

The fact that so many new and different fibers are available is a great tribute to the skill and resourcefulness of the American man-made fiber producing industry.

The Penalties of Success

But all good things bring with them problems and complications. One of the problems that accompanies the flood of new fibers is that of keeping straight in our minds what they are called and what they can do in fabrics. It is not only the millions of consumers who are apt to be confused by the lengthening list of fiber names. Millmen, converters, garment manufacturers and retailers already are complaining that they are bewildered by the increasing host of new fibers and their often competitive claims.

The proliferation of new and still newer fibers presents the textile industry, and especially the fiber producers, with an immense task of education. To achieve their optimum success—the success they deserve and require—the new yarns must be used effectively by spinners, by weavers, by dyers and finishers. Their good points must be understood by converters and garment manufacturers and retailers. Not only must these good points be understood, but there must be understanding of how to process the fibers in the mill and dyehouse.

Thus, along with promotion of the new fibers at the consumer level, there is needed straightforward, soberly honest information on how to handle these fibers in the textile manufacturing processes. Here is a job the trade press is outstandingly equipped to do. Its editorial pages along with its advertising pages can effectively provide the industry with reliable, usable information on how to handle the new fibers so as to make the most of their good qualities.

Mill Men Rely on Trade Press

The information the trade press brings to the millmen, the dyers and finishers and the converters is read by them with eagerness and appreciation. These men look to the trade press to keep them informed as to the things they need to know about new developments in textiles including the change in manufacturing methods required to process the newer fibers efficiently.

To give them the information they want is a job that requires close cooperation between the trade press and the producers of fibers. For our part here at Modern Textiles Magazine we are happy to say that we have enjoyed that cooperation in the past, and that producers of man-made fibers, for the most part, are working more closely with us than ever before in getting to our readers the information on how to process the new fibers that these readers—textile "insiders" all of them—tell us is most helpful to them. In making such information increasingly available, we also feel here at Modern Textiles that we are doing our chosen work of speeding the growing acceptance by mill people of the new man-made fibers with all their wonderful properties in textiles.

A. H. McCullough

OUTLOOK

in textile marketing

By the Editors

Textile marketers, engrossed in the day-to-day struggle to make sales, might not have noticed, but investment people outside our industry are unusually optimistic about its prospects.

BUSINESS WEEK in a recent article pointed out that, despite the fact that textile company earnings so far this year have not been good, the stock market seems to have faith in the future of many of these companies. Textile shares have been recovering from their 1957 lows faster than the market as a whole.

The basis for this buoyancy, BUSINESS WEEK says, is the feeling among informed persons, both in and out of textiles that the industry is headed for long-term improvement.

This optimism is reflected in the stock market, the magazine points out, "though perhaps more from 'feel' than from facts." But, BUSINESS WEEK adds, there are some facts to justify the hopes for better textile business. They help to explain why security analysts such as Standard & Poor's, Value Line and Arthur Weisenberger & Co. are forecasting that textile shares are in for a sustained rise.

As cited by BUSINESS WEEK, here are some of the reasons for optimism over textiles' future.

Cotton goods inventories reached a high point in May after climbing since the end of 1957. They have been dropping ever since.

Although there is little statistical evidence to prove it, textile people believe, the weekly says, that inventories from mills to converters all along the line to finished apparel in stores are also at a low point.

Another important factor in the optimism about textiles' future, the magazine points out, is the apparent determined effort on the part of mills to "tie production more closely to demand than ever before".

A growing number of important fabric manufacturers have announced plans to cut back output. Milliken, for example, has let it be known that the mills whose goods it sells won't build up more than one week's supply of any one fabric. Extended shutdowns during Thanksgiving and Christmas weeks have been announced by Burlington, Lowenstein, Abney, Chicopee and several other big mills.

If this move to limit production should prove effective, BUSINESS WEEK says, it could turn out to be the most significant development in textiles since the introduction of synthetics.

Speaking of man-made fibers, the article points out that these materials are accounting for a growing share of textile output. Last year consumption of cotton and wool fell 7% and 14% respectively while use of rayon and acetate dropped only 2%. Consumption of the newer man-mades rose by 25%.

Still another ground for expected better demand for fabrics, BUSINESS WEEK notes, is the feeling that the industry is at the point where a general cyclic upturn is due.

This feeling is based on the assumption that textile demand moves in two year cycles. Since the industry's latest slow period began about 1956, the two year downtrend is now ending and the upward two year cycle of demand should make itself felt—if indeed the cyclic theory of textile activity is valid.

The magazine notes that the big integrated textile outfits such as J. P. Stevens, and United Merchants & Manufacturers also expect better profits in the future.

The magazine points out also that the largest U. S. fabric manufacturer, Burlington, which makes about 4% of domestic sales, is convinced that prices for its products will soon rise. Burlington's treasurer, Charles F. Myers, Jr., has predicted that unit sales will increase 4% to 5% in 1959 over 1958. He said that more and more companies are going into production of man-made fibers, and this trend is helping their sales.

Summing up, BUSINESS WEEK quotes Halbert M. Jones, president of the American Cotton Manufacturers Institute (which includes in its membership mills making man-made fiber fabrics).

Jones said recently that the textile industry "is potentially in its strongest position in its history," and that the "financial strength of the industry has never been greater."

Want your own successful knitting business? Here's how one man did it. The ingredients? Grinding hard work, outstanding skill as a knitter backed by rare business acumen.

Reuben Berman's operation bootstrap

By Jerome Campbell
EDITOR, MODERN TEXTILES MAGAZINE

AMONG the half-dozen or so outfits turning out fashion knitwear for the better dress and sportswear trade a new name has climbed to prominence in the past few years. Fair-Tex Mills of New York City and Catasauqua, Pa., is currently making about seven million pounds of knitted fabrics a year. In this output fancy and novelty fabrics are dominant. Pile fabrics knitted with nylon, Dacron and the acrylic fibers along with brushed and fleece fabrics are also strongly in the Fair-Tex line. Originally a producer of the staple fabrics that are the bread and butter of the circular knit goods trade, the company has become in recent years a style goods knitter. Its president and founder, Reuben Berman sees this trend becoming even stronger in the days ahead.

The creation of Fair-Tex Mills was literally an "operation bootstrap" with all the hard work, long hours, sweat and anxiety that the phrase implies.

Begun with only a pitifully small few thousands of dollars in capital, the business has grown remarkably as a result of the grinding hard work and unusual business acumen of Reuben Berman.

He is a man with a rare ability to face facts without fooling himself; this gift of seeing reality without self-deception or undue illusions whether of optimism or pessimism caused him when he was a high school senior to give up his first ambition which was to be a school teacher. This was back in 1926 when Berman was attending Commerce High in his native New York City. Although he says now that he was "an average student," he had a knack for doing the kind of work his teachers wanted. He himself liked bookkeeping, typing and stenography and the other commercial subjects he studied. He decided that high school teaching of these subjects was the career for him.

His ambition to teach school, however, was soon extinguished. It so happened that, as a favor to one of the men who taught at the school, Berman went to the teacher's home to help out as a baby sitter. Thus becoming intimately acquainted with the living standards of a high school teacher in the year 1926 gave him, even then as now a realist, pause for hard thought. He reached the conclusion that teaching would not give him the things he wanted out of life. He decided that a business career would offer greater opportunities for making the money needed for the fuller life, as he envisioned it.

Thus, when he graduated from high school, he set out to become an accountant. During the day, he worked full time in an office doing bookkeeping and other useful clerical tasks while at night he studied accounting in New York University. As things fell out, the furniture factory where he was working in 1932 as office manager went out of business, and Berman found himself looking for a new job. A friend told him that a knitting mill in Brooklyn needed a good all-around office man, and Berman thus found himself working for Raynit Mills, a company that had about 80 Wildman machines turning out rayon plain knit goods for the underwear trade.

Reuben Berman stayed with Raynit for 14 years, becoming in time office manager, sales manager, purchasing agent and generally a strong right hand to Harry Liberman, the owner. During those years,

UNDER THE EYE OF THE MASTER—Reuben Berman (right) stands with Stanley Krauss (center) chief mechanic and Harry Berman, his brother and vice president of Fair-Tex. They are watching the functioning of one of the company's Supreme machines.

the company moved from Brooklyn to larger quarters in West New York, N. J. and substantially expanded its operations. During those years, too, Reuben Berman learned the knitting business as thoroughly as any man can learn it. His hours were long, and his work week was always six days and often seven.

Raynit's equipment gradually expanded to 200 machines, and, in time, the company added a dye house, giving Berman an opportunity to enrich his knowledge of knitting with a knowledge of dyeing as well. In spite of his long hours and seven day week, Berman managed to find time for night courses at Columbia University to study the chemistry of dyeing and finishing—knowledge that came in handy in buying dyes for Raynit and in keeping a sharp eye on the dye house operation.

A Personal Inventory

With his capacity for looking hard facts squarely in the face and not fooling himself about their significance, Reuben Berman came to a time when like any good accountant, he could not avoid making an honest audit of his position with Raynit and his future prospects. The result of this stocktaking showed him that at the age of 33, he was a key man in a successful and fairly substantial business; but he also saw that his earnings, considering what he did and had done for his employer, were distinctly on the low side. He saw that Raynit was doing well (as what textile operation wasn't in 1946?) but he saw also that its management was not concerned with future growth or a future market picture that might be a lot different and a lot more competitive than it was at that time. Striking a balance, he decided that the time was ripe for him to go into business for himself. And so he and a partner (who later withdrew from the business) each put up $6,000 for a total capital investment of $12,000 and founded Fair-Tex Mills. For their shop, they rented a decrepit dance hall in Cliffside Park, N. J., just across the river from Manhattan. In its cavernous interior, amid the ghosts of lindy-hoppers and jazz band echoes of the hall's better days, Berman set up his knitting equipment, carefully bought on the second hand market with the major part of the $12,000 capital. It consisted of 16 Tompkins machines and two Wildman rib knitters.

Berman had no trouble getting a sizeable quantity of initial orders; his real trouble was in finding enough yarn to fill them. In those days, with the war hardly ended, and the textile industry booming, yarn was harder to come by than nylon stockings. By dint of hard work and endless scurrying around, Berman found yarn somehow, and he and his partner set their machines to knitting. In the first year of operation, the new Fair-Tex Mills grossed close to $300,000—a really astonishing volume in view of the fact that for the first six months Berman and his partner *did all the work*. To keep the new business alive and growing they toiled day and night seven days a week; they literally did everything that had to be done from soliciting orders, fixing machines and hunting out yarn down to such lowly but necessary tasks as sweeping the floors. By the time they entered their second year, they had begun to hire workers.

Once he was assured that his new venture was safely on its way, Berman set his mind firmly on achieving steady growth. Earnings were plowed back into investment for new machinery, for buying yarn, for hiring more workers. By 1949 volume had passed the half million mark and Fair-Tex had 30 machines all clicking around merrily turning out a growing line of staple knit cloths. By 1951, Berman saw that he needed his own dyeing facilities, and he acquired a half-interest in United Dyeing and Finishing Co. at the little town of Catasauqua just outside Allentown, Pa. To bring his knitting plant as close as possible to the dye house he took over the building of the old Starke Ribbon Mills in Catasauqua.

(Continued on Page 67)

Part 2

Nonwovens today

By Howard E. Shearer
American Viscose Corp.

The second installment of this broad review of nonwoven fabrics includes bonding formulations, lists of patents, nonwoven products in use and suppliers of nonwoven equipment

BONDING METHODS

Methods of bonding depend upon the bonding agent used, the fiber content, web weight and end use requirements. The thermoplastic fiber binders usually require heating by steam, air, infra-red or electronic means. For high strength, heating must be accompanied by application of pressure by calender rolls, flat bed or roller press and other means.

The formation of the fiber, the web and bonding in situ, have also been found practical with various fiber forming polymers[10]. Bonding with liquid dispersion types of binders may be accompanied by print rolls[11], spraying[12], coating or immersion[13, 14], and various combinations of these, some of which have already been indicated.

The Pellon process as described in the patent literature (U.S. 2,719,795) consists of subjecting the random web of miscellaneous fibers to a pre-stabilization treatment, followed by paste impregnations with resin latices to reduce the density and improve flexibility in the bonded fiber. The binder is set by vulcanization, washing and drying.

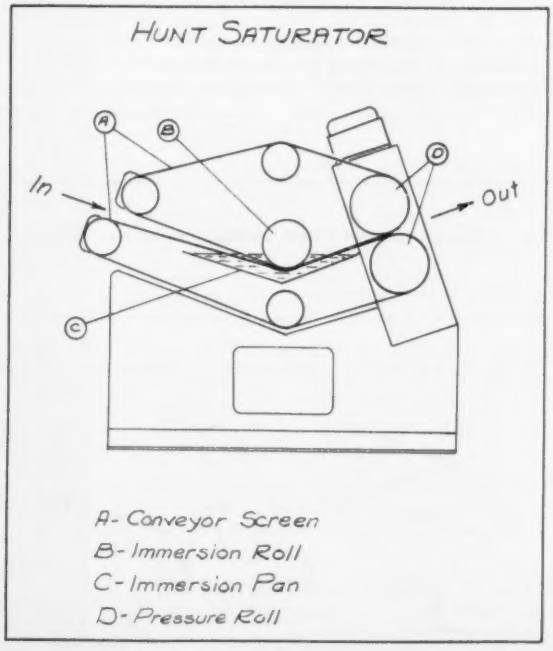


Fig. 6

An immersion type of bonding machine, manufactured by Rodney Hunt is shown in Figure 6. This machine makes use of two stainless steel wire screens, one supporting the web, the other positively holding it down as it travels through the bonding liquor. The screens convey the web through the exit squeeze rolls, preventing distortion of the web through their length of travel. The squeeze rolls are loaded pneumatically and covered with a soft density neoprene to permit the binder to flow into the screen interstices. Good web release is obtained by carrying the screen around the rolls. Screens, drip pans, rolls, etc. are easily removed as the machine is built on the cantilever principle. It is made for 20″, 40″ and 60″ web widths.

When the liquid bonding agents are used some type of drying or heat setting equipment is essential. This may consist of a series of dry cans, multiple pass hot air oven, and/or banks of infra red lights, calender rolls, or high frequency drying.

DYEING AND FINISHING

While many uses for bonded fiber fabrics do not require dyeing and finishing, there are constantly expanding uses that do. When dyeing is required, the character of this material would seem to call for development of a special technique to handle it successfully. However, the very nature of this material, the manner in which it is made and the uses to which it is put, make this not too difficult.

Nonwoven fabrics are mainly designed for a particular end use or for a relatively short life cycle. Their prices range between that of a high grade paper and medium quality woven fabric. These conditions require and permit a relatively low cost method of dyeing. Such dyeing may frequently be accomplished in a continuous operation with web production by incorporating color in the bonding agent.

While the fiber as well as bonding agent employed will govern the selection of a dye, direct and alcohol soluble dyes are most frequently used. In some instances there is a demand for faster colors and for stock dyed fiber. These demands are being satisfied. Screen, block and rotogravure printing are quite common.

A method of dyeing and finishing nonwoven fabric is shown in Figure 7. This method is particularly applicable to such fabrics made of rayon and a thermoplastic bonding fiber[15]. The fabric enters the cool aqueous dye bath containing a mixture of direct and acetate dyes, plus wetting out agents necessary for adequate dye pick up in the short bath time. Excess liquor is removed by squeeze rolls. These also act as

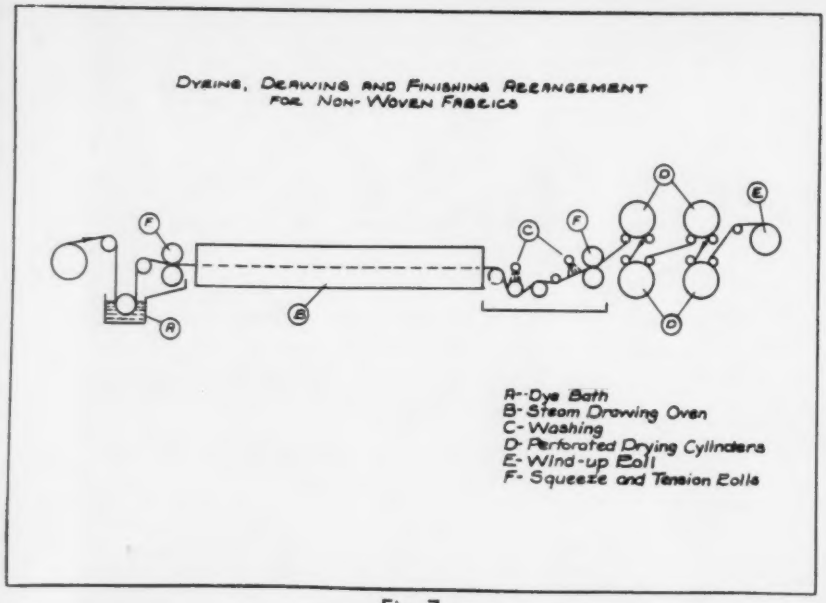

Dyeing, Drawing and Finishing Rearrangement for Non-Woven Fabrics
A- Dye Bath
B- Steam Drawing Oven
C- Washing
D- Perforated Drying Cylinders
E- Wind-up Roll
F- Squeeze and Tension Rolls

Fig. 7

tension rolls against the drawing force of the fabric as it passes through the steam-air oven maintained at about 180°F to prevent the web from drying out and to set the dye on the fiber. As the web emerges from the oven it is given a rinsing and finishing spray which could include the application of various repellants.

Squeeze rolls at the after end of the finishing bath are driven at a slightly faster rate than those at the dye bath, thus exerting a slight drafting action with as much as 30% widthwise contraction as the web passes through the oven. This tends to align the fibers, thus increasing strength, sheen and transverse stretch in the fabric after drying on enclosed externally air heated rolls. As many as three layers of fabric are simultaneously processed by this method.

YARN FACED NONWOVENS

A method for producing a composite yarn-faced nonwoven fabric is receiving considerable attention. Such a method is illustrated in Figure 8. It requires a sheet of parallel adjacent ends of yarn, sufficient in number to cover the width of material to be produced and of a type compatible with the bonding media in the nonwoven fabric material. The sheet of yarn is run from one or more section beams through suitable guides and tension devices to where it meets with and is autogeneously bonded to the nonwoven fabric backing as they simultaneously pass around the heated bonding drum.

The composite fabric is drawn under tension through a padder where suitable dyes, usually of an alcohol soluble acetate type assisted by wetting out agents, are applied. Insertion of a compensator between padder and drying oven is advisable to allow for variations in rate of delivery brought about by dimensional changes in the fabric, stoppage or other cause.

Bonded fabrics of this type possess high longitudinal strength and excellent transverse tear resistance but slit lengthwise easily. They possess a satin-like finish which make them especially suited for ribbons. They may readily be embossed, as may also many of the other bonded web fabrics.

PHYSICAL CHARACTERISTICS

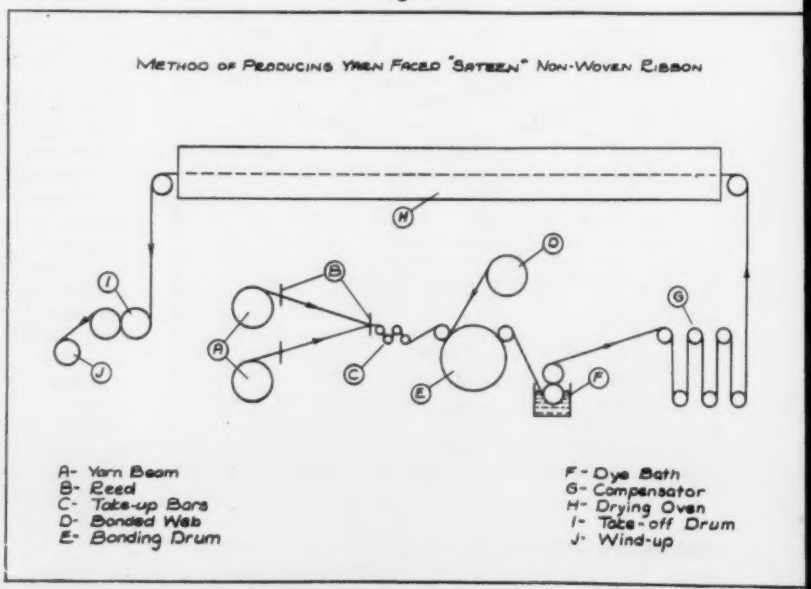
It may be interesting to look briefly at a range of physical characteristics that may be built into nonwoven materials through use of different fibers, bonding agents and methods of forming the web. These are illustrated in TABLE I.

Fabrics V-C and V-R differ in their manufacture only with respect to the type of fiber used. They are of an overall liquid bonded type with a firm, fairly hard finish. Sample V-C, made of cotton, contained many neps; while V-R, made of rayon, was clear and uniform. While of approximately the same weight, the rayon fabric is much thinner, stronger and of higher permeability than the cotton fabric. It will be noted that this fabric has a strength of some 25 lbs./in./oz. of weight in one direction.

Fabrics W-1165 and W-1182 are of another manufacture, employing thermoplastic fiber as the bonding agent. Sample W-1182 possesses a papery hand and is marked by extremely low air permeability and low absorbent capacity. It possesses high strength in relation to its weight and to the other fabrics tested. Sample W-1165 is softer, bulkier and is characterized by very low bursting strength and great flexibility. Differences as observed between these two fabrics may be readily obtained by varying the amount of bonding

(Continued on Page 58)

Fig. 8



DYEING and FINISHING SECTION

BLEACHING
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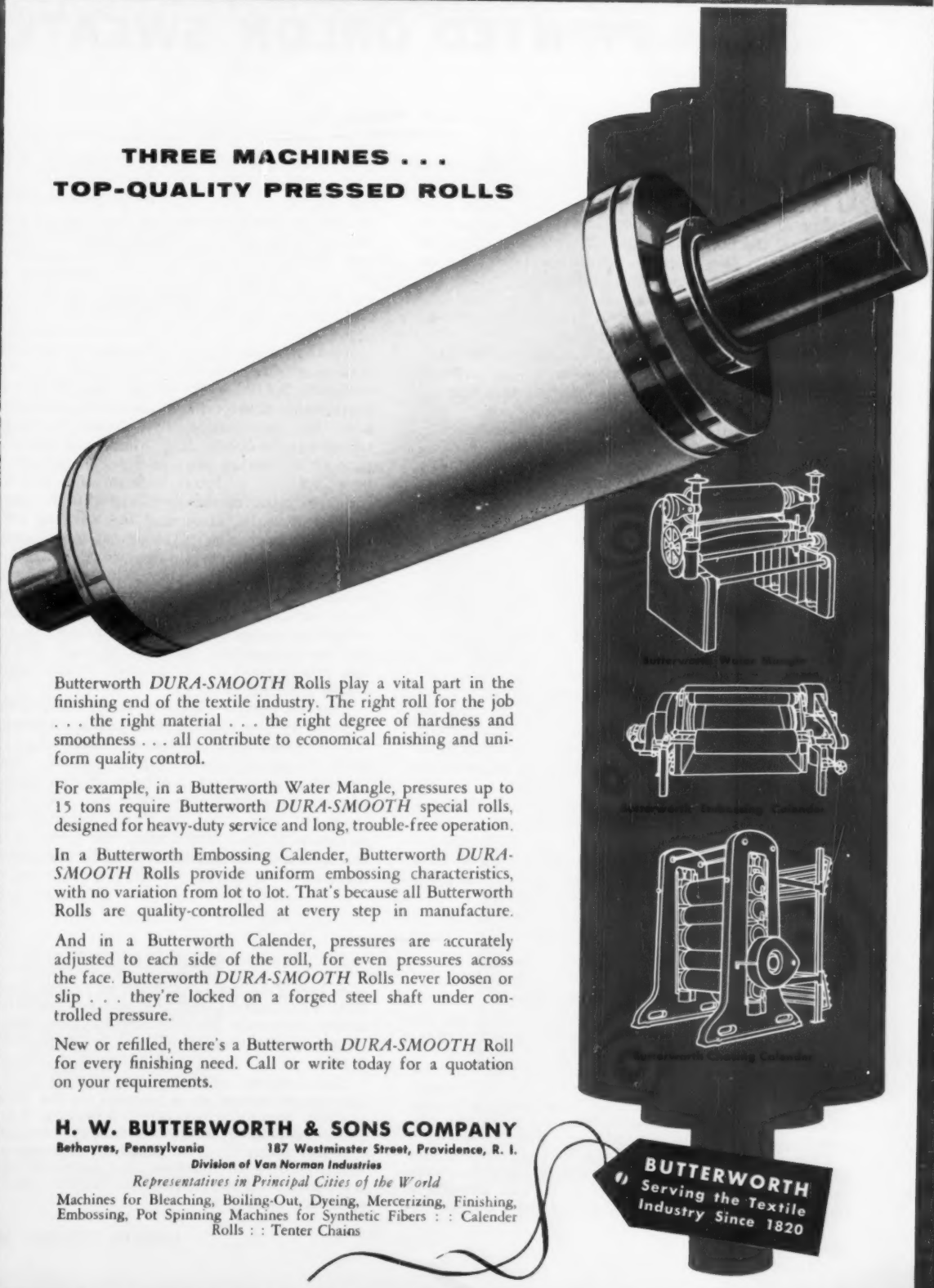
SPECIAL
PROCESSING

THREE MACHINES . . .
TOP-QUALITY PRESSED ROLLS



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new profit ideas—

PRINTED ORLON SWEATERS

By A. A. Wiggins, Jr.
THE DU PONT CO.

UNTIL 1956, little thought had been given to the possibility of printing on sweater fabrics. However, in that year, the widespread use of Du Pont's Type 42 Orlon acrylic fiber with its good acceptance of dyes and fastness of the resulting patterns permitted the successful introduction of sweater printing. Wool, until recent years the most widely used fiber in sweaters, was difficult to print satisfactorily.

As the use of Orlon increased, the need for diversification in textures and effects became more critical. Increased styling in classic sweaters and development of bulky knit structures from heavier denier fibers accomplished much of this needed diversity. In addition to adding to this styling diversity, printing on sweaters also made it possible for sweater manufacturers to increase volume potential and reduce the possibility of oversupply of plain goods. Classic and dressmaker styles were printed in 1956. Bulkies, the most important type to emerge since then, were offered widely in printed versions in 1957 and 1958.

Once such problems as dyestuff selection and curing conditions were solved, the printing of knitted strips for cut and sewn types was well on its way. The use of printed patterns on full-fashioned and already constructed cut and sewn garments of Orlon is a more involved and intricate matter. A small number of specialty printers have evolved processes for handling individual sweaters in which patterns for separate panels are used. This results in outstandingly attractive effects since seams do not run through an integral part of the pattern, as is the case in garments from printed sweater strips.

From a practical, economic standpoint, printing increases the value of a knitter's inventory by 20 to 25%. A garment that in plain, pastel colors could retail for $4.95 will be sold for probably $6.95 in a printed version. In addition to this increase in profit opportunity, printing is an excellent method for moving the knitter's inventories that can accumulate at the end of the back-to-school and holiday selling seasons. Thus, an inventory of plain sweaters of Orlon that could not normally be moved before the succeeding back-to-school season, could be screen printed and sold at a profitable level for the spring selling period.

Another advantage in utilization of printing is that occasionally seconds can be converted to first quality sweaters. As in many textile operations, a certain percentage of second quality goods results from defects that have nothing to do with the durability or tactile handle of the cloth. Minor non-uniformities in yarn or coloration are examples of defects that can be eliminated or minimized through printing, thus converting the garments into profitable items.

Fiber manufacturers and the knitting trade have, through cooperative development work, changed the sweater of Orlon acrylic fiber from a utilitarian garment to an item of high fashion. Printing is an invaluable ally in maintaining and enlarging this trend. It is certain that a vast majority of textures and effects developed for women's sweaters in the future will be successfully handled through the ingenuity and imagination of the printer, to the profit of the whole knitting industry.

This has been a banner year for the printing trade. Interest in prints on woven and knitted yard goods is intense and most printers are busier than they have been in many years. While printed sweaters of Du Pont Orlon have not been offered widely, there are excellent possibilities that the general trade excitement over prints will be widened to include sweaters. In case this occurs, the printing trade has the tools and techniques at hand to capitalize on such a trend.

Du Pont to Make Caprolactam

A new plant to manufacture caprolactam, an intermediate chemical for type 6 nylon fiber and plastics, will be built at Beaumont, Texas by the explosives department of the DuPont Co. The decision to build the plant, Du Pont said, followed a major research effort by the company. The research is said to have led to a new low-cost process that will result in prices for caprolactam below present levels.

Economies in the new process are said to be made possible by the use of low-cost petroleum derivatives and technological improvements. It will provide a co-product, cyclohexylamine, which has a number of uses including the production of rubber accelerators. Both caprolactam and the co-product will be produced primarily for sale outside the company. Capacity of the new plant will be 50 million pounds a year.

Construction will begin early next year and the start-up of operations is planned for the third quarter of 1960. Beaumont was selected because it is near the source of primary raw materials, products of the petroleum industry. The plant at Beaumont already manufactures methionine, an essential amino acid used as a feed supplement for poultry, and Hypalon synthetic rubber.

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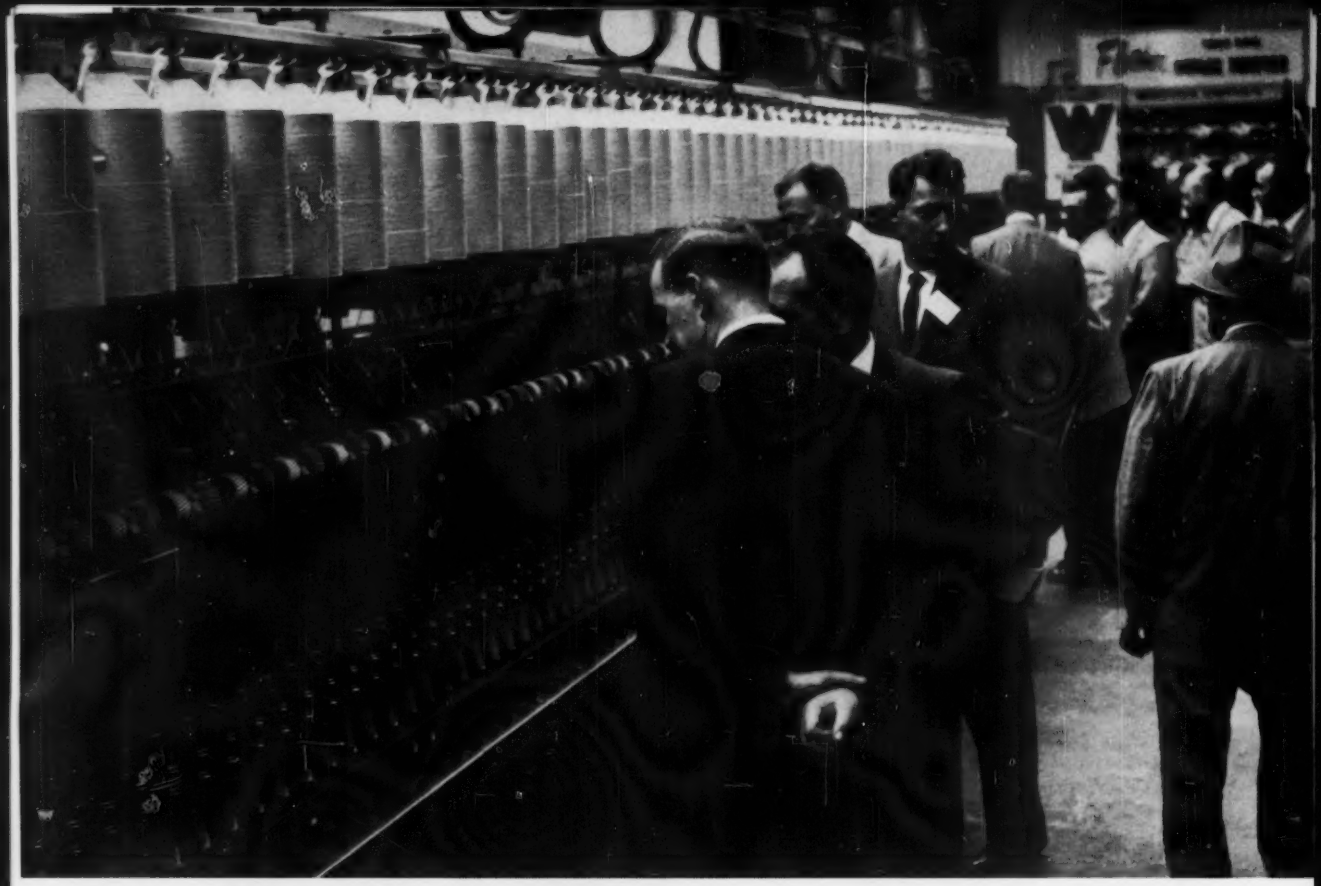


Whitin's new frame under scrutiny

GIANT STEPS FORWARD

today's textile machinery

By the Editors

a report on the Greenville show

A PREVAILING feeling that textile manufacturing is strongly on the upturn was evident in the crowds of mill people who jammed Textile Hall in Greenville, S.C. in October to attend the Southern Textile Exposition. Exhibitors showing a greater variety of textile machinery and mill equipment than ever before were heartened by the keen interest and apparent "open to buy" mood they sensed in visitors to their exhibits.

And sounding strong from the rich variety of equipment on display was one dominant theme: here are the machines and the supplies that will enable millmen to spin yarns, weave and finish fabrics at lower cost and higher speeds while getting better quality all along the line of production.

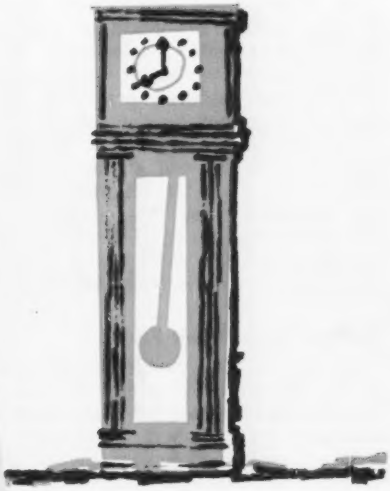
Prominent among the displays at the show was the variety of improved yarn spinning machinery. Virtually every major maker of spinning equipment had something new to display to millmen eager to find roads leading to higher production efficiencies.

Saco-Lowell Shops, for example, had in operation its improved Gwaltney frame, which, company spokesmen stressed, is essentially a high-speed frame. In its design, scientific appraisal of operator physical effect were made to determine the optimum position of the components of the frame which are directly serviced by the doffers and spinners. As a result, working areas of the frame have been cleared of all sub-assemblies which could obstruct and slow down motions of the operator. The improved Gwaltney frame in operation at Greenville, permits operator motions without interruption in continuity as recommended by current time and motion standards.

Among the design changes incorporated in the new Gwaltney frame to increase operating efficiency are: (1) A frame that is 4 inches lower than previous models making doffing easier. (2) A new design of balloon control rings which present an entirely new contour to the yarn to provide better control. (3) The conventional ring rail has been replaced with new, individual ring holders. This change improves cleanlinesss in the spindle area, thereby reducing ends down and improving yarn quality.

The advantages of the new Gwaltney frame on exhibit at Greenville were enhanced by use of the new Saco-Lowell 01C Speed-Tex ring. The new ring was designed specifically for the improved

faith in the future of textiles



Geigy's part in the textile business has been strictly in the supplying of accessories — dyestuffs and meritorious auxiliary products. Its faith in the textile business is expressed in its plowbacks into research which have resulted in contributions of revolutionary products to provide new economies, simplified procedures, greater plant and consumer performance. These products permit a trading-up in textiles which all consumer research plainly indicates is essential if textiles are to regain their rightful share of the consuming spending dollar. The textile industry has expressed its faith in Geigy by recognizing and rewarding its inventiveness.

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DYESTUFFS

Gwaltney frame so as to permit full utilization of the frame's large ring diameters and long traverses which had been limited by conventional ring design. The Model 01C ring is said to permit a new high in large package spinning speeds. Special flange contours permit traveler speeds which Saco-Lowell says were never before attained.

At Greenville, Saco-Lowell also demonstrated its new system of obtaining roll pressure in the drafting element. Tradenamed "MagneTrol", the new system makes use of magnetic top rolls. These produce the required pressures, thus doing away with all auxiliary equipment for applying top roll pressures. The MagneTrol system eliminates all lubrication in the drafting zone. This elimination of lubrication, Saco-Lowell says, plus the fact that the MagneTrol has few component parts and the fact that it has more efficient cleaning action in the cleaner, permits a high degree of cleanliness in the operation of the drafting element.

Roberts' New Arrow Frame

Among the new developments in yarn spinning at Greenville were the group of new Arrow spinning frames demonstrated by their maker, Roberts Co. of Sanford, N.C. Robert E. Pomeranz, president of Roberts, said that the new frames were being shown publicly after having been in mass production for several months during which more than 100 frames were installed in three mills. He pointed out that the new frames incorporate the improvements and refinements inspired by the technicians of many leading mills. The original frame in a 25 inch width was manufactured by Roberts more than two years ago. Since then, Pomeranz said, more than 350 frames with 110,000 spindles have been installed.

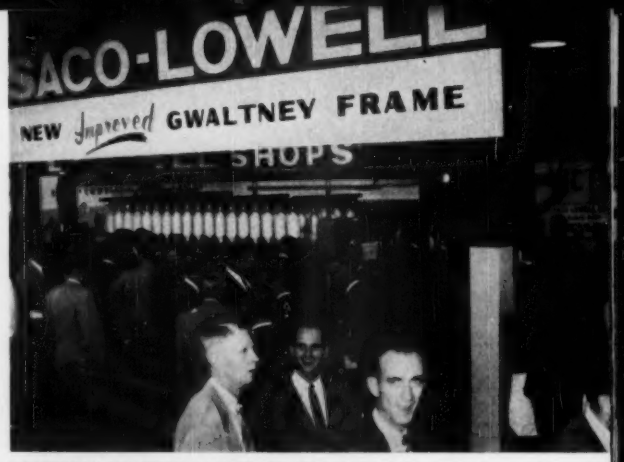
The Arrow frame is available for spinning cotton, synthetic and blended yarn in the traditional 36 and 39 inch widths as well as in the 25 inch version. In actual operation at Greenville was the Roberts Arrow Model M-1, 25 inches wide, 4 inch gauge with 2¾ inch rings and 12 inch bobbins. The second Arrow frame in operation was the Model WM-2, 36 inches wide, 4½ inch gauge, spinning long staple worsted and Orlon in an 80-20 blend, duplicating an actual mill run. Pomeranz pointed out that every working, turning or oscillating motion of the Arrow frames are fully ball bearing equipped. Ball bearings, he said, are used at such key points as lifting rod balls, wave shafts, cross shafts, builder motion pivots, crown gear arms, complete lay trains, intermediate gears, front roll gears, upright shafts, jack shafts, cylinder bearings and tape tension pulleys.

Improved Woolen Spinning

In the field of woolen yarn spinning, Davis & Furber aroused considerable interest with its ring spinning frame incorporating many new improvements. Among these are a variable speed motor drive which is said to result in as much as 25% more yarn output. Other features of the new frame are elimination of the bottom rail; one shot lubrication; balloon control rings; spinning ring automatic lubrication; and bigger packages as a result of longer bobbin traverse.

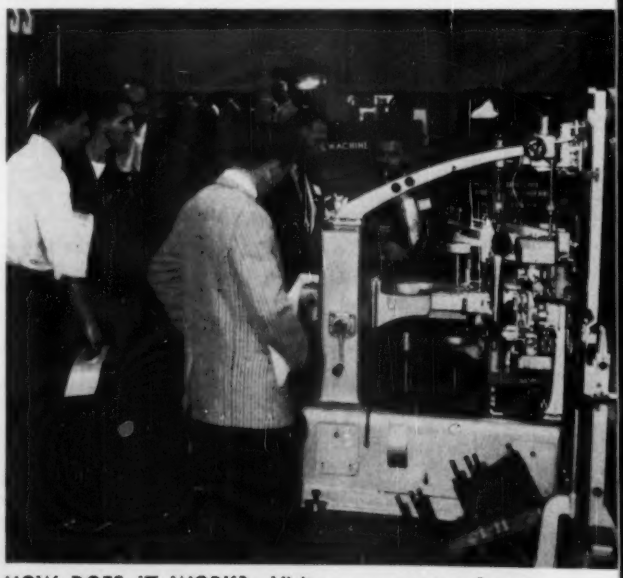
Prominent among the displays of spinning equipment was the brand new Piedmont frame of Whitin Machine Works, Whitinsville, Mass. This new frame was described in detail in a special article in this

(Continued on Page 62)



WATCHING THE WHEELS GO ROUND—The crowd was dense at Saco-Lowell's exhibit.

INFORMATION PLEASE—Millmen, eager to learn, kept exhibitor's staff men busy at the American Lava booth.



HOW DOES IT WORK?—Visitors were eager for explanations at the Uster exhibit.

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All indications point to the continued popularity of taffetas as a high style item.

For that dry, crisp, swishy taffeta hand, from papery thin to pleasing softness, Standafin T Conc. provides the answer in finishing of taffetas, failles, shantungs, etc. Slip-proofing with no mark-off or effect on shade or luster are added features imparted by Standafin T Conc.

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REPORT FROM EUROPE

By SPECIAL CORRESPONDENT

U.S. Trade Policies Hotly Debated

GENEVA—United States textile fiber policies were again hit—and defended—here at Geneva, the world's No. 1 world trade and economic center. Usually, U. S. crop support and fiber import policies come under fire here at UN Economic Commission for Europe meetings. The latest attack occurred during talks at minister level of signatory nations to the General Agreement for Tariffs and Trade (GATT).

L. K. Jha, GATT president, charged U. S. import policy curbs on cotton, wool and flax, as well as other raw materials produced by underdeveloped nations, endangered world peace. He made the same charge on the United Kingdom and Germany.

U.S. Defense Attacked

The U. S. delegation presented its fourth annual—and mandatory—report on its disputed textile import-support policies. But the defense merely set off new counterattacks. Defending the cotton import quota for 1958-59, the U. S. said that, despite progress under the soil bank, Commodity Credit Corp. stocks remain large, and the 1958 crop "is expected to be larger than domestic demand." The U. S. also announced, before a generally hostile audience, that the short staple export subsidy would be 6.5¢ a pound and that its 1958-59 program provides for "paying exporters in kind out of CCC stocks."

American Spokesman Heard

E. Douglas Dillon, U. S. Undersecretary of State for Economic Affairs, staged his own attack at the GATT session. He struck out against a GATT economic report recommending buffer stock pools for cotton, wool and other farm goods to replace U. S.-type support programs. Mr. Dillon said: "It is our view that international buffer stock schemes do not offer a hopeful method of solving commodity problems." And, finally, he said Red Chinese dumping of textiles is undercutting "traditional export markets of India and Japan."

UK, Hong Kong Problem Unsolved

Semi-formal talks between Hong Kong and British textile officials have failed to come up with an agreement which would see a quota set on Hong Kong exports. British Cotton Board officials, headed by Lord Rochdale, will continue the negotiations—but only at long range. Meanwhile, Prime Minister Harold Macmillan said Britain would not levy import bans on duty-free cotton goods imported from Asian Commonwealth countries. Incidentally, the Hong Kong Chamber of Commerce recently came out with a booklet denying its responsibility for Britain's textile problems. It said the wage rate yardstick is "a most dangerous precedent" in determining prices.

Britain Fears U.S. Textile Imports

Ernest Goodale, president of the Textile Union, said a fully convertible pound sterling could pave the way for a flood of American textile imports. He said: "Today we are faced with another threat to our well being from the East. Tomorrow it may be the result of the creation of a free trade area in Europe. The day after that, it may come from a flood of imports from the U. S. if the pound is made freely convertible."

Acrilan Trial Shipment

The new 3.5 million pound sterling plant of Chemstrand Ltd., at Londonderry, North Ireland, is about ready to make its first test shipment of Acrilan to its U. S. parent company. The plant eventually will supply Britain and Europe with Acrilan now being imported from the U. S.

Italy Expects German Competition

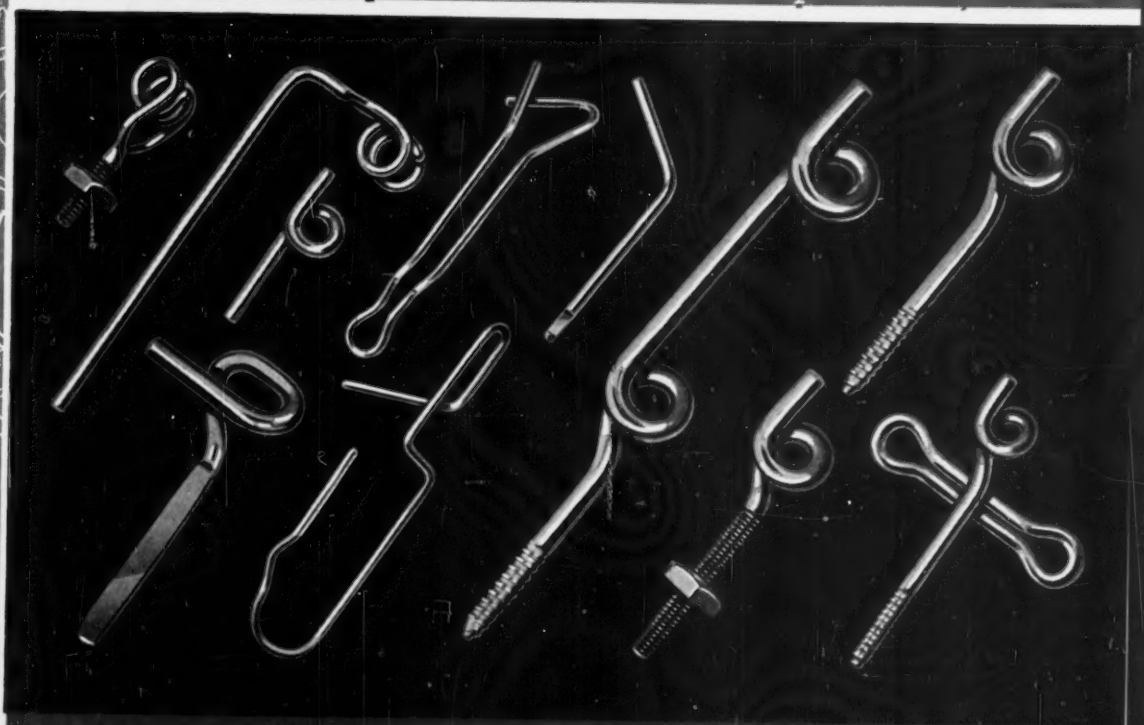
German-made Dralon acrylic fiber, produced by Farbenfabriken Bayer, is likely to compete with Orlon acrylic fiber, imported from and produced by Du Pont in the U. S., Italian textile men believe. Dralon's present 10% higher price was expected to disappear in the near future.

Italian textile officials also fear stepped up competition from Dutch and German textiles, especially ready-to-wear goods, after the European Common Market starts to function next Jan. 1. Italian manufacturers may have to specialize more on sports goods and other lines on which they have wide consumer acceptance.

Swiss Spinning Frames for Ceylon

The Government of Ceylon has decided to go in for the development, on a large scale, of Ceylon's textile industry. It will set up a big spinning mill at Avayangoda and recently decided to award Swiss firm J. J. Rieter & Company, Ltd., of Winterthur, an equipment order worth some $930,000. The order can be doubled after the trial period is over in two years.

MACHINERY and EQUIPMENT SECTION



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MITCHELL BISSELL CO.

Scott & Williams subsidiary to make IMPROVED LOOPER

DR. R. H. WHITEHEAD, President of Scott & Williams Inc., recently announced that the AMSL Corp., organized under the laws of North Carolina, with offices in High Point, N. C., and Laconia, N. H., held its first stockholders and subsequent directors meeting and elected its officers. For the present, the officers of the new corporation will be Scott & Williams personnel and among them are the following: Dr. R. H. Whitehead, President; W. O. McMillan, Vice President and F. H. Hallenbeck, Secretary.

The AMSL Corp. was organized to make the automatic looping invention of Messrs. Mann and Bley of Philadelphia available to all foreign and domestic hosiery and outerwear mills. Mill trials have been going on during the past year to improve their invention. Consequently it should be available to the entire industry during the early part of next year. Patent applications have been filed in major countries throughout the world.

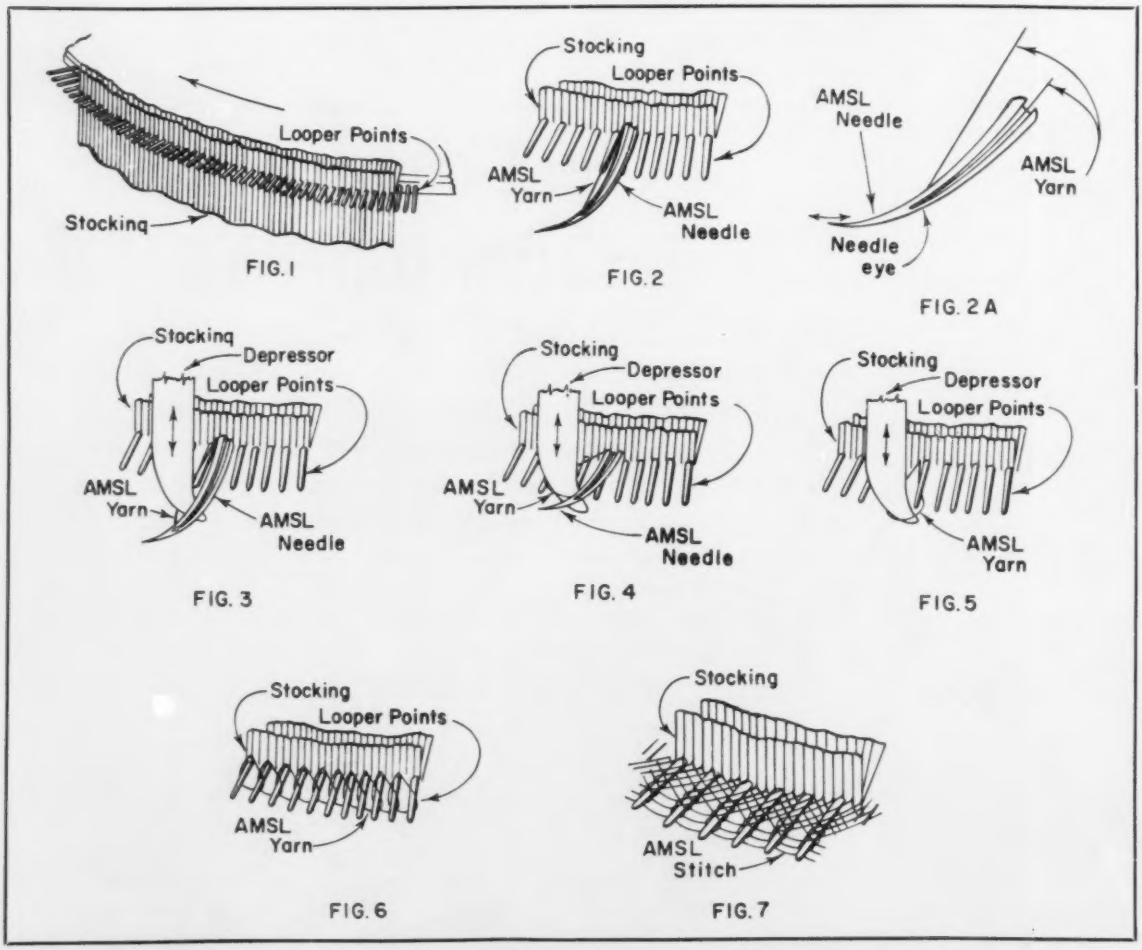
During the development period, loopers equipped with the AMSL attachment have been consistently run at the rate of 550 RPM. It has been demonstrated that the skill of the operator is no longer the limiting factor in production where the attachment is used. After a few weeks of practice few operators with the AMSL attachment on the standard looper should experience any difficulty in operating loopers at maximum speed and so greatly increase their output. Eyestrain of looper operators is no longer a problem where the attachment is used.

AMSL means Automatic Micro Safety Looping. In addition to increasing the production to the full capacity of the looper, the looping job is made safe and the long training period for competent loopers is eliminated. AMSL reinforces the ordinary looping and eliminates the necessity of putting every loop on a point of the looper to avoid a subsequent run from the looping line. In the case of ordinary looping, a missed loop on the part of the operator will result in a run. However, with the AMSL attachment the loop is safely caught and the run prevented.

The AMSL attachment can be readily applied to any standard looper. It is neat and compact, and requires only a few hours for installation. Its presence does not complicate the work of the operator nor change the working action of the looping machine.

The attachment will be manufactured by Scott & Williams and sold to licensees of the AMSL Corp. on a

Figs. 1-7 Operation of AMSL Looper



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3. **RINGS LAST YEARS LONGER.** High speed operation for years has established the superiority of the new design.
4. **CLEANER YARN.** With better oil distribution and no leakage, mills are getting cleaner yarns.
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reasonable basis. There is no change required in the looping line, hence no alteration is required in the knitting machines. Stockings looped with the AMSL safety feature are accurately described as looped seamless stockings.

The AMSL unit is simply applied to any conventional looper. It is mounted on the stationary dial cap of the looper in advance of the usual looping action. Essentially, the device comprises a curved needle, a yarn depressor and a chaining finger synchronously operated by mechanical means from the main gearing to achieve a 3½ ratio of the AMSL needle to the normal looping needle.

The specific operation of the attachment is best understood by reference to the accompanying sketches. Figure 1 shows the looper points of a conventional looper. The looper dial moves clockwise in the normal manner at its maximum speed. The fabric sides are applied so that they lay on the points without puckers. It is not necessary to apply the fabric precisely on the normal looping course. As the looper dial automatically rotates clockwise, the fabric is brought in the path of the curved AMSL needle which is threaded with a single yarn, and which oscillates in an arcuate path at 3½ times the speed of the usual looping needle.

Needle Is Curved

The ASML needle operates from a position inwardly of the fabric and in its outward stroke pierces the fabric held by the looper point. Figure 2 illustrates this penetration at a midway point. Since the AMSL needle is curved and has an eye at its penetrating end, the AMSL yarn is drawn into a chord between the needle eye and the point of fabric penetration. This needle construction, accordingly, insures that an opening is created between the yarn and the needle itself as best illustrated in Figure 3.

Located just outwardly of the looper points, the AMSL yarn depressor is vertically actuated in timed relationship with the curved AMSL needle. As the needle approaches its most outwardly position, the yarn depressor begins its downward stroke, its forward edge entering the opening between the AMSL needle and the yarn. As it continues the downward movement, the gently sloping trailing edge of the depressor engages the AMSL thread, camming it to the left below the level of the looper points. Consequently, as the AMSL needle is withdrawn simultaneously with the depressor's upward movement, the AMSL yarn is passed below and around the looper points.

The net result achieved is that the sides of the fabric are pulled together by the looping action of the AMSL yarn as it passes alternately through the fabric sides and around the looper points. This sequence of operation is defined in Figures 3, 4, 5 and 6. Inasmuch as the AMSL needle and the depressor operates 3½ times for each looper point, it will be appreciated that the AMSL yarn passes through the fabric sides and around each looper point at this speed. Figure 7 is indicative of this configuration.

A chaining finger, not shown in any of the Figures in the interest of clarity, is also synchronously operated with respect to both the AMSL needle and the depressor. This finger is mounted for oscillatory horizontal movement immediately above the looper points along a line outwardly of the fabric sides. The construction of the chaining finger is such that in its rearward position, the AMSL yarn is passed above

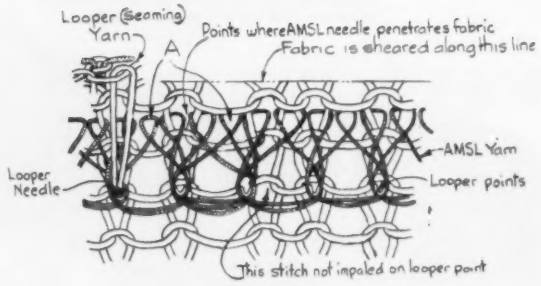

Fig. 8

the finger; whereas in its forward position, the AMSL yarn is passed below the finger. The consequence of this action is twofold: (1) it creates slack in the AMSL yarn as the yarn passes progressively through the fabric sides and around the looper points; (2) it facilitates the formation of a chain stitch on the bare looper points which separate the work.

After the AMSL attachment has completed its operation on the fabric, the rotating dial carries it past shears which removes the excess fabric above the looping line. Thereafter, the work is carried by the dial to the conventional looping device which operates at a 1 to 1 ratio with respect to the dial points. The combination of the AMSL attachment which introduces a single thread 3½ times with respect to the dial points, and the ordinary looper which ties in point by point, insures a high-speed yet safe closure of the fabric to be looped.

Figure 8 illustrates the manner in which the AMSL yarn and the regular looping yarns cooperate with each other in achieving a highly effective closure. In order to avoid confusion, the ordinary looping yarns are shown on only a single wale, whereas in actual operation, these looping yarns tie-in at successive wales. Furthermore, just a single thickness of fabric is represented.

Dropped Stitches Eliminated

In view of the random manner in which the fabric sides are applied on the looper points, it is to be expected that not every stitch will be applied on a point. This is clearly shown in Figure 8. However, this is the very condition which the AMSL invention is designed to overcome. The real value of the device is based on its ability to overcome this condition simply and with complete safety.

By frequent penetrations of the fabric sides, the AMSL yarn catches all needle loops at least once, eliminating the possibility of dropped stitches. Once the fabric sides are so closed by the frequent passages of the AMSL thread, the subsequent looping action of the regular yarns will interlock with the multiple AMSL loops, safely and positively binding the stitches together whether or not impaled on the looper points.

Referring again to Figure 8, the AMSL yarn is shown as not being always caught in the fabric as, for example, at A. In actual practice, however, there is a double thickness of fabric (not shown), in which this loop will be caught.

AMSL by elimination of the bottleneck of looping in seamless hosiery, and its added safety feature, is expected to make a valuable contribution to the forward march of seamless. Licenses to use the AMSL attachments will be offered initially on men's, women's, children's and infants' hosiery at a low rate of royalty. *For further information write the editors.*

Furniture courtesy of John H. Pray & Sons Co., Boston, Mass.

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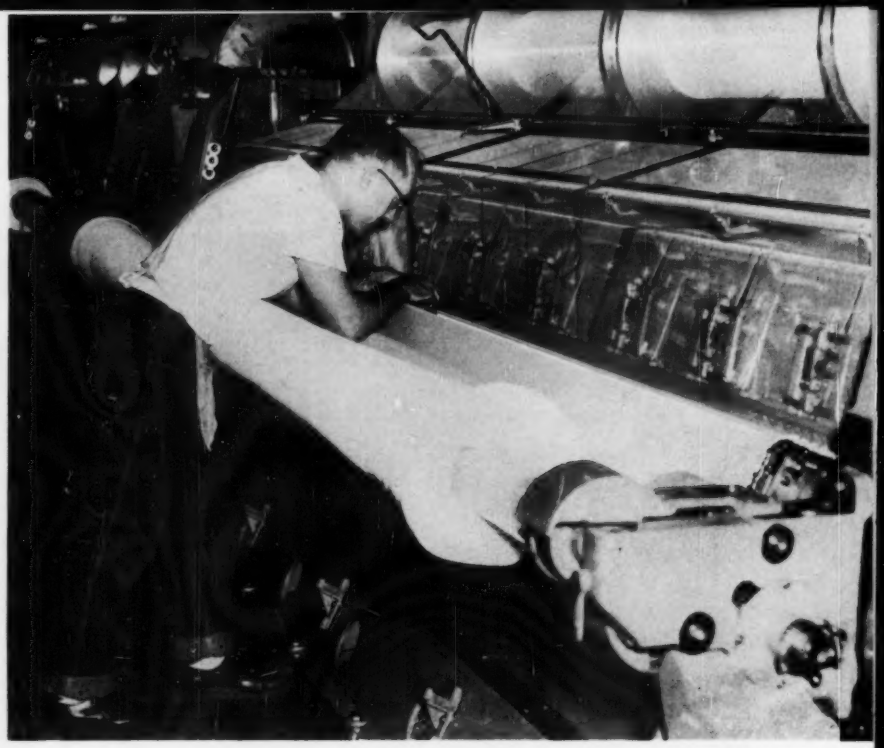
UNIVERSAL WINDING COMPANY

TRICOT OUTPUT DOUBLED



Harold Rupert, knitter at Milco's Bloomsburg, Pa., plant, working at one of the firm's 12 Reading 800 machines.

new machines at underwear plant run steadily at 800 cpm

By the Editors

OPERATION of a battery of new tricot machines at 800 courses a minute has enabled Milco Undergarment Co., Bloomsburg, Pa. to double its output per machine of plain jersey knit fabric for women's underwear. The new tricot machines, made by Textile Machine Works, Reading, Pa., are operated under full production conditions 24 hours a day seven days a week.

L. V. Collen, general manager of the big Milco fully integrated underwear plant, reports that the Reading machines, of which 12 are now in use, stand up in a satisfying way under this heavy-duty operating schedule. Other machines in the Milco plant, knitting the same kind of cloth, operate at 400 courses a minute.

Milco acquired its first Reading 800 machine shortly after they were introduced by Textile Machine Works in November, 1956. Late in 1957 it acquired four more of the 168″ machines, and during 1958 an additional seven were bought bringing the number up to the 12 machines now installed and running.

The Reading machines are used to knit both 55 denier acetate and 40 denier nylon cloth. In addition to their phenomenally high speed, the Reading machines, according to Collen, have demonstrated the advantage of producing uniformly high quality cloth; of operating so as to provide constant runner length with a high degree of uniformity in fabric yield. With the Reading machines cloth yield is held within five points, Collen reports. He points out that the advantage of constant yield, under three-shift operating conditions, promotes uniformity of fabric which in turn favorably influences cost of production.

Collen finds that the Reading machines run smoothly at their high speed of 800 courses a minute with freedom from vibration. As he expresses it, the Reading machine,despite its high speed "does not shake itself to pieces." He is greatly impressed by the ruggedness and durability of the machine—its ability to run day-in-day-out at 800 courses a minute. He reports that, on 55 denier 28 gauge acetate, Milco has run 10,000 to 15,000 racks without a defect. On 32 gauge nylon the Reading machines have run 500 racks without a defect.

Among the innovations on the Reading 800 tricot machine, as described by Textile Machine Works spokesmen, are a highly efficient let-off motion. It operates without tension and regulates the feed of yarn required to maintain continually specified runner length. The excellent qualities of the let-off motion, as demonstrated in two years of production runs at Milco are also praised by Collen.

Another feature of the new machine is a balanced needle motion actuated by an eccentric mechanism from two crankshafts. Oversize precision-cut gears, give excellent timing of the crankshaft. Replaceable shell-type bearings are used as well as automatic pressure lubrication. Using a linkage similar to the needle motion, a balanced presser motion reduces vibration and permits smooth high speed operation. Correct press settings are made by a simple adjustment controlling relative displacement between the presser rocker shaft and press arm.

A new approach to the engineering of the guide

(Continued on Page 91)

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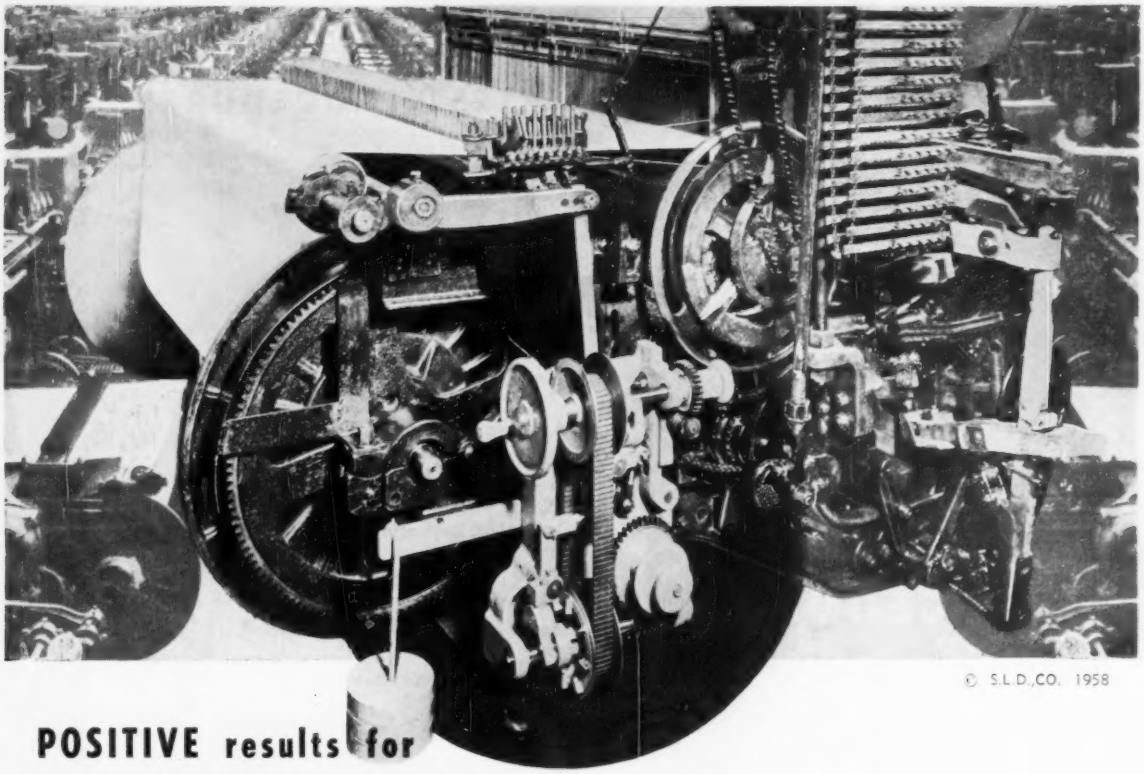

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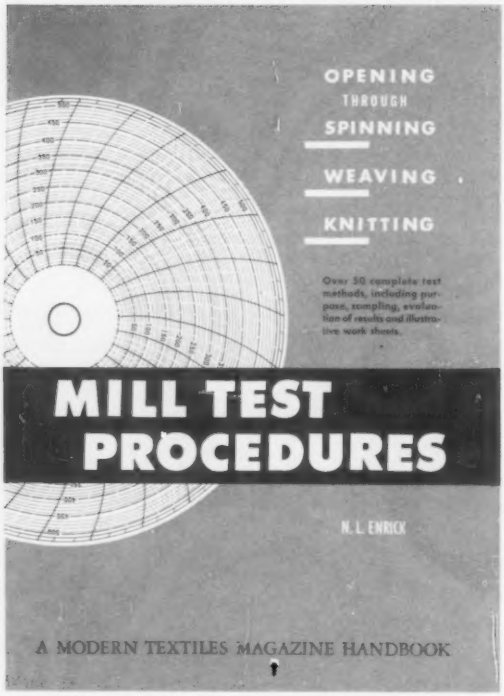

By N. L. Enrick

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Step-by-step instructions for carrying out each test are provided, together with the purpose of the test, the recommended testing frequency and sampling, and the calculation and evaluation of the test results. Supplementary data show illustrative worksheets, summaries, and typical results.

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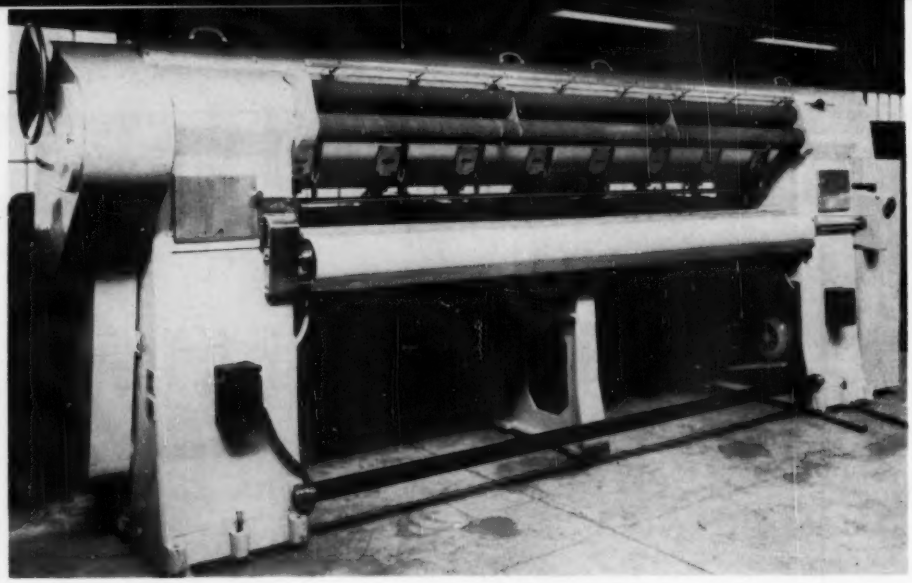


TUFTER—This new machine is said to be able to produce three different types of carpet simultaneously.

Many new machines shown at Manchester

by special correspondent

A NEW WORLD-WIDE SPIRIT of enthusiasm was apparent at the International Textile Machinery Exhibition held during October at Manchester, England. Described as the biggest exhibition of this kind ever to be held anywhere in the world, the show had 350 exhibitors from 17 countries demonstrating equipment worth $15,000,000. Many completely new concepts of plant design were unveiled.

Growing international interest in processing acrylic fibers was demonstrated by the number of visitors to the stand of Sanderson & Co. of Todmorden, England, who showed a new machine for setting acrylic sliver used in the bulking of acrylic yarns. The unit can also be used for setting all other thermoplastic fibers.

The machine processes five cans of sliver in a continuous cycle. A vertical bell lowers into position for the vacuum and steaming operations. At the end of the cycle the bell moves upward and the five cans move to a delivery station while a fresh five cans move into position beneath the bell. A typical processing cycle would consist of: initial vacuum of 25-inches Hg.; steam for 2 minutes at 240°F; re-evacuate for 2 minutes; steam at 240°F for 6 to 8 minutes; final 4 minute vacuum.

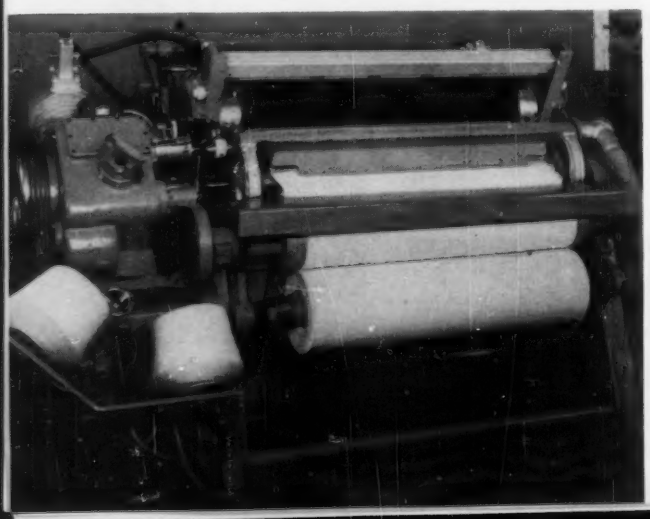
The entire operation is fully automatic and can be set to repeat indefinitely for batch production. Single processing cycles are controlled by switches. The unit, called the Sanderson V.B. High Temperature Stabilizing Plant, has a 3 h.p. electric motor, uses steam at 60 pounds per square inch pressure, and is said to give a third more production than any other existing setter.

One of the highlights of the exhibition was the Greenfield Tow-to-Top Converter by Prince-Smith and Stells Ltd. This converter is basically a combination of the Greenfield tow cutter, developed some time ago by F.N.F. Ltd., and the Prince-Smith and Stells Speed-o-Gill. The result is a self-contained unit for converting continuous filament tow into staple fiber suitable for processing on standard worsted machinery.

The unit was processing Courtelle acrylic tow, 4½-denier. Total feed was 2,000,000-denier, equal to 4,500 grams per 40 yards. Draft was 10; output sliver equalled 450 grams per 40 yards, at a deliver speed of 69.4 yards per minute. Staple delivered was 6-inch, but this can be varied from 2½-inches upward. By fitting a special bias cutter staple ±1-inch either side of a set length can be obtained. One outstanding feature of this unit is its low cost.

Another machine for producing staple fibers directly from tow without destroying the parallelism of the fibers was exhibited by Société de Constructions Mécaniques de Stains, of Paris, France. In this unit, the Stains Direct Spinner, filaments are broken by passing them under tension over a prism with blunt edges.

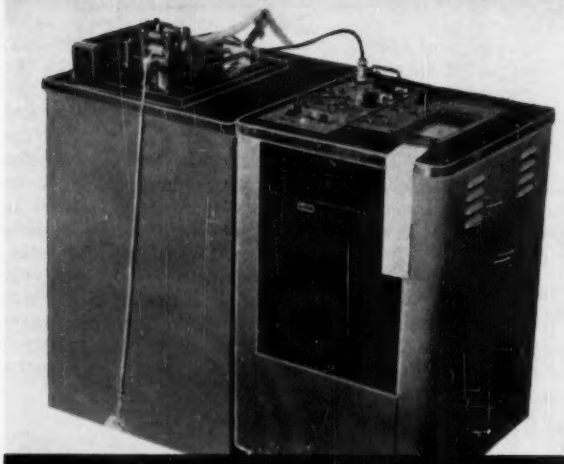
One of the neatest examples of functional design was presented by Michele Ratti SpA, of Luino, Italy. The Ratti Model CN High Speed Re-Winding Machine winds synthetic fibers overend from spinners' pirns and cones, or even from rayon cakes, on to flanged uptwister bobbins. Traverse gear allows up to 60 double traverses per minute. Nylon can be wound as fast as 1,100 yards per minute at full bobbin diameter. Virtually straight guiding of yarn from



MAXBO SHUTTLELESS LOOM—Without a shuttle, this loom inserts 300 picks a minute. An air jet shoots yarn from big supply package through the shed.

USTER LICKS YOUR FIBER DRAFTING PROBLEMS!

WEST POINT COHESION TESTER PREDICTS!



PREDICTS effect of roll spacing

PREDICTS effect of bi-directional drafting

PREDICTS effect of humidity

PREDICTS effect of draft

Provides fast and efficient cohesion test for maximum fiber control and proper blending in processing. Eliminates numerous tests for fiber length, fiber fineness, surface characteristics, wax content, etc. Compensates for variations in raw material to achieve optimum twists for roving. Determines drafting properties of synthetic, natural and blended staples. 1⅛" minimum, 8" maximum roll setting.

THE USTER SPECTROGRAPH PROVES!

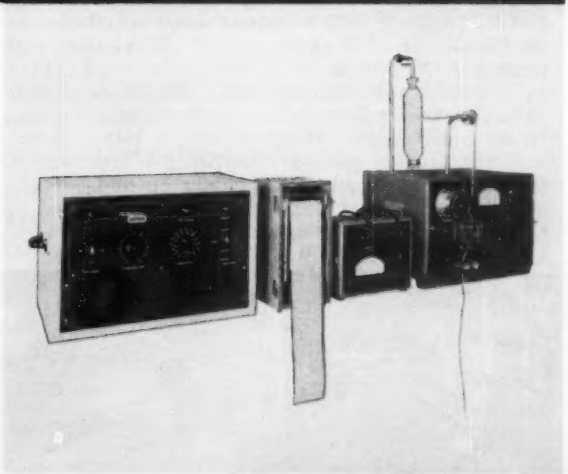
PROVES production machinery settings

PROVES mechanical condition of machines

PROVES short, medium, long term variations

PROVES final fabric appearance in 4 to 6 minutes

The Uster Spectrograph introduces an entirely new concept of fiber control during processing. The Spectrograph describes mechanical troubles and machinery setting faults in the drafting zone. Simultaneously with the operation of the Evenness Tester, the Spectrograph automatically analyzes short, medium and long term variations. The result is stored on numerous channels with the Spectrogram chart delivered in 4 to 6 minutes.



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CONTINUOUS QUALITY CONTROL IN MANUFACTURING

take-off package to bobbin is maintained when yarn tension is as low as 0.1 grams per denier. This tension can be controlled at will. The unit has stepless adjustable traverse length within a ½-inch range, with individual micro-setting of traverse guides.

Thomas Holt Ltd., of Rochdale, England, exhibited a new electronic slubcatcher which can be so precisely controlled that it is possible to allow knots to pass while catching slubs of the same diameter. A photoelectric cell in each catcher unit scans the yarn, and the device operates whenever a slub above a set diameter passes through it. The master unit can be set to control any number of spindles.

Yarn Lubrication

The same company also showed a new type of molten wax yarn lubricating device which can be fitted to any winding equipment. Solid wax is fed into a tank mounted at one end of the winding unit; this tank melts the wax and feeds it into a tube of about 1½-inch diameter running the length of the machine. Wherever a yarn passes over this tube a porous steel bush is inset. By capillary action the bush draws some of the wax in the tube through to its outer surface and the yarn passing over the tube is lubricated.

Holt also introduced their new M106 High Speed Cone and Cheese Winding Machine, a unit which has no really startling features but which has every up-to-date fitting, and which is said to work faster than most other units on the market.

Fr. Mettler's Sons Ltd., of Arth, Switzerland, showed a yarn singeing machine with new electric burners specially designed, in cooperation with Imperial Chemical Industries Ltd., for polyester spun yarns of the Dacron type.

The Platt/Bright Twister Cabler, shown by Platt Bros. (Sales) Ltd., of Oldham, England, was designed to make rayon and nylon tire cord in one process, combining the primary twisting of the singles with cabling. It is said to give high operational efficiency and low wastage with minimum labor requirements. An installation of 24 units, each of 100 spindles, will process 1,000 pounds of 2/1650-denier cord, 12/12 t.p.i., per hour. The cabler is a double-sided unit with 2 decks embodying the uptwisting and ring-twisting principles. Standard unit is 9-inch guage and will produce packages weighing 4/5 pounds of finished cord. It is possible to obtain 9 pound delivery packages. The finished cabled yarn is composed of flat filaments; it is possible to adjust the twisting process to give a final flat yarn no matter what twist was originally in the individual yarns.

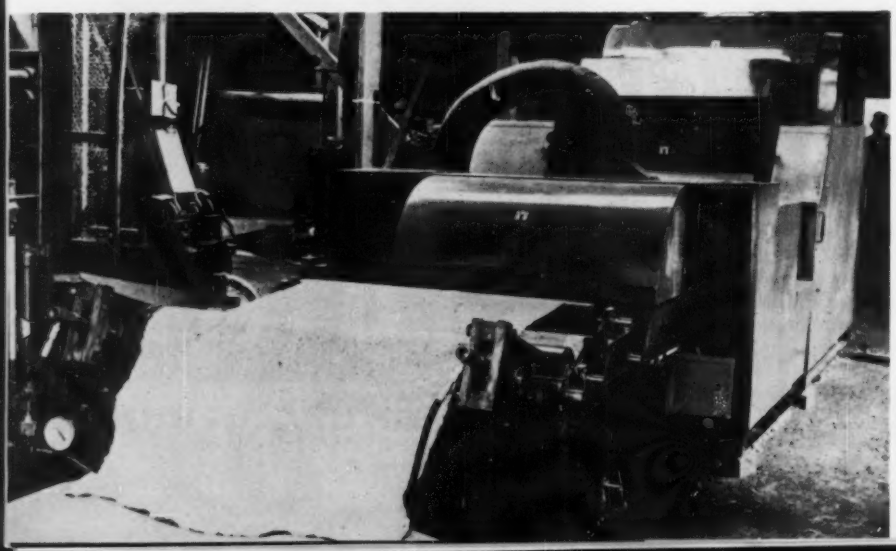
Ernest Scragg & Sons Ltd., of Macclesfield, England, introduced the D.L.X. Relaxing Machine which produces a stabilized high bulk yarn of the Saaba type. This yarn is called Astralon, and several garments knitted in it were shown on their stand. The unit has precision control of temperature and yarn feeds to ensure uniform conditions throughout the stabilizing process, and a new hyper-sensitive electric stop motion. Finished packages up to 2½ pounds are produced, bottle-bobbins, double taper or parallel build.

Of the many looms shown in the exhibition that which attracted most attention was the Maxbo loom, by AB Maxbo, of Norrköping, Sweden. In this machine the weft is blown through the shed by an air jet. This allows phenomenal picking speeds, a quite usual speed being 320 picks per minute weaving a 36-inch fabric. Experimental speeds of up to 410 picks per minute were mentioned. Filling feed is from two large cheeses. Owing to the absence of shuttles and picking-stick mechanisms, and partly because the movement of the reed is truly vertical, lack of noise and vibration is amazing. The loom need not be bolted to the floor. All movements transmitted to thread feed devices, healds, reed, etc., are obtained from a gear-box, thus eliminating the usual cams, arms, linkages, etc., and resulting in a comparatively simple unit. The loom shown at the exhibition was the latest model, being lower and even more compact than earlier Maxbo looms. At the moment no figured fabrics can be woven, but work is being done on the fitting of a dobby.

Dyeing Machinery

One of several new machines for dyers was the Pegg Pressurized Double-Compartment—Double-Pole Hank Dyeing Unit, shown by Samuel Pegg & Son Ltd., of Leicester, England. This has been designed to meet the more critical conditions imposed in the dyeing and cooling of man-made fiber yarns. Pressurization allows temperature to be raised to 216°F. A new method of circulation by propellors through the double, equal-size compartments, together with the fact that the machine is completely filled with liquor, gives a smooth flow, free from agitation and air. Circulation is reversible at regular periods. The poles at top and bottom are adjustable for different yarn lengths. The new machine will dye practically every natural and synthetic fiber in hank form. Capacity of various sizes ranges from 50 pounds to 600 pounds. The same company also showed a new extractor, the Whirlwind, which has a multiple V-belt drive, and self-energizing brake.

British Tufting Machinery Ltd., of Blackburn, England, showed a new tufting unit which can produce three different types of carpet simultaneously. It has been designed for the small tufter who wants to produce a range of carpets with the minimum equipment.



NEW NONWOVEN UNIT—Said to be the first British machine for making nonwovens, this unit performs opening, blending, pre-carding and web forming.

RESIN 0-4

ESPECIALLY FOR CELLULOSIC FABRICS

TOPS 'EM ALL FOR HIGH RESISTANCE TO CHLORINE DEGRADATION

RESIN 0-4 is a *new* water-soluble, cellulose-reactant finish with *outstanding resistance to chlorine degradation* even after home or commercial launderings at the boil. This triazone reactive resin has many other outstanding advantages that will add up to more fabric sales for you.

- **Excellent stabilizing and crease-resistant effects on cotton and rayon**
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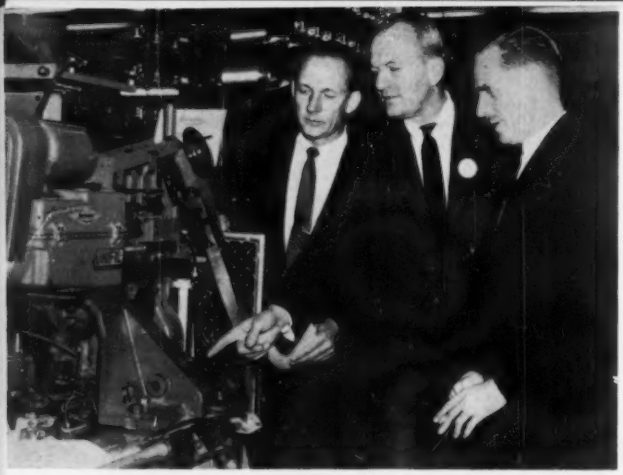
- **Resin will not build up on texturizing equipment**

Ask your local Onyx representative for the full facts about RESIN 0-4 or write for Technical Data Sheet to Textile Division, Onyx Oil & Chemical Co., Jersey City 2, N. J.

ONYX CHEMICALS



THE HEAD MAN POINTS—Robert Leeson (center) president of Universal Winding Co., explains inner workings of his company's Unifil Loom Winder to William V. Goodhue (right) Universal's director of research and J. A. Nasmith, director of export sales. The unit was demonstrated on Northrop looms.

At the exhibition the machine was producing a 1/8-inch gauge cut pile carpet, a 5/32-inch gauge loop pile carpet, and a 3/16-inch gauge cut pile carpet, at the same time. The machine was running off both beam and creel.

A company not previously associated with the textile industry, Radcliffe Engineering Co., of Radcliffe, England, showed a machine called the Bartuft for producing an entirely new type of loop pile carpet which does not have a backing cloth. In principle the machine is extremely simple. An endless belt is formed by specially shaped transverse looping bars. Yarn from a beam is inserted between these bars by a reciprocating feed bar and trapped there to form a loop. The endless belt then moves forward carrying the yarn to a spreading device which applies PVC paste to the base of the loops to form the carpet backing. Then the belt moves through a bank of infra-red heaters to cure the backing. Yarn quality is not important because the yarn does not pass through needles. No skill is needed to operate the small, compact unit.

A unit for manufacturing nonwoven fabric was shown by A.E. Callaghan and Son, of Midhurst, England. The unit can produce nonwoven fabrics, felts and bonded webs at high speed. Models are available to produce a wide variety of widths and thicknesses. The one unit performs the following operation: opening, blending, pre-carding, and web-forming with or without impregnation. It can rubberize fabric produced for upholstery and cushioning applications. A final drying or vulcanizing stove can be incorporated into the machine.

Probably the growing interest in quality control throughout the world had something to do with the number of instruments shown at the exhibition. A large part of these instruments were for production, as opposed to research, applications. One of these, a Manra Yarn Filament Counter designed by British Rayon Research Association, of Manchester, England, gives a quick, accurate and reproducible result which demands hardly any skill or concentration from the operator. The yarn is simply clamped in the device and a lever depressed. An electronic mechanism strains the yarn by a set amount, operates a blade which cuts through the yarn, and counts each filament severed, recording the final number on a dial. The device is built under license by Louis Newmark Ltd.,Croyden, England.

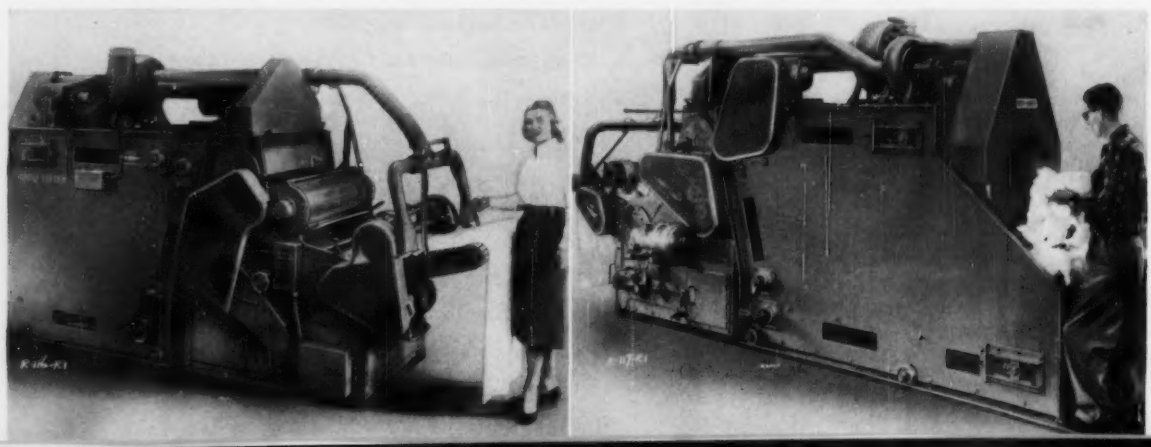
Heinz Mahlo, of Donau, West Germany, exhibited a portable bleach meter which gives on the spot bleach measurements of wet or dry fabric accurate to ±1%.

The success and interest of the exhibition as a whole can be judged by the comment of a visitor from South Carolina, one of a party of U.S. textile men which flew over for a one-day visit to the exhibition. "Had we realized the fantastic developments which have taken place, we'd surely have stayed for a week at least," he said.

Trimmer for Rando-Webs

Curlator Corp. is now producing the "Fibr-Savr", a new attachment for the Rando-Webber textile machine. The attachment is designed to trim Rando-Webs to the desired width and return the waste fiber automatically to the Rando-Feeder for reprocessing Rando-Webs of natural and synthetic fibers, asbestos blends and leather can be trimmed with a minimum of maintenance, the manufacturer reports, with 100% of the trimmed fiber reuseable since the slitting is done before bonding operations. The Fibr-Savr fits all Rando-Webbers—40, 60 and 84-inch—and can be installed into the same area as the conventional product web conveyor. Guarded, cutting knives are mounted on a shaft above anvils, geared together and power driven from condenser drive. In operation the knives are set and held in exact position with a cam lock adjustment. Feeder and webber sections of the fiber return system can be separated for servicing. *For further information write the editors.*

NEW ATTACHMENT IN ACTION—On the right is the delivery end of the Rando-Webber showing cutting knives and adjustable exhaust tubes of Fibr-Savr. On the left is rear view of Fibr-Savr showing motor driven exhaust fan and deceleration chamber through which fiber passes before being returned to Rando-Feeder hopper.



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SCOUR and DYE
with one product in just one bath

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STIMULON's one-product, one-bath technique drastically reduces nylon hosiery and knit fabric processing time and cost. Even heavily soiled fibers can be scoured and dyed in a single operation with Fancourt's new heavy duty detergent and dyeing assistant.

STIMULON effectively removes soil, waxes and oils from nylon, orlon, Fluflon*, Ban-Lon**, and mixed fibers.

STIMULON assures clean, even dyeing with good color unions by assisting dyestuffs to disperse, penetrate and level.

STIMULON cuts costs, increases efficiency and builds profits.

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**Trademark of Universal Winding Co.,*
***Trademark of Jos. Bancroft & Sons Co.*

Nonwovens

(Continued from Page 54)

TABLE I—PHYSICAL CHARACTERISTICS OF SOME COMMERCIAL NONWOVEN FABRICS

SAMPLE	V-C65D	V-R65D	W-1165	W-1182	P5-368	M-A103	L31-2830
Weight—oz./sq. yd.	1.67	1.54	2.91	2.75	3.38	1.76	2.91
Thickness—inches lb./sq. in. pressure	.0151"	.0088"	.0121"	.0076"	.0124"	.0173"	.0101"
Breaking Strength (Grab)							
Lengthwise—lbs.	31.5	37.5	10.5	41.0	22.5	19.5	9.5
Crosswise—lbs.	9.0	9.0	0.5	13.5	6.0	3.0	9.5
Tearing Strength (Trapezoid)							
Lengthwise—lbs.	1.0	2.0	2.0	2.0	1.0	1.0	1.5
Crosswise—lbs.	0.5	1.0	0.5	0.5	0.5	0.5	1.5
Bursting Strength—lbs. (Scott Ball Burst)	10.0	18.0	3.5	11.5	9.0	11.0	5.5
Permeability—cu ft./min. per sq. ft.	185.0	254.0	27.6	3.5	214.3	390.2	54.3
Absorbent Capacity—% (Chicopee Method)	616	593	837	109	512	966	1179
Stiffness—(Gurley)							
Lengthwise—mg.	235	234	68	93	95	34	45
Crosswise—mg.	95	46	11	28	13	18	42
Drape—Hanging Loop Method							
Lengthwise—inches	2.1	1.5	2.0	1.7	2.1	2.2	2.1
Crosswise—inches	1.8	1.7	3.2	2.3	3.2	2.7	2.1
Flammability (AATCC Tentative Method)							
Lengthwise—sec.	9.3	7.1	12.1	25.8	7.7	8.4	11.6
Crosswise—sec.	8.6	7.8	12.3	27.6	11.2	7.2	12.0

fiber present or the heat and pressure applied in bonding.

Sample P-5, the heaviest of those tested, is a multiple cotton card web type, overall bonded in a mock longitudinal rib formation with synthetic latex. It has a relatively high crepe value but is not outstanding in other properties.

The MA fabric is a rayon-cotton blend, intermittently bonded with a series of printed transverse resin stripes. It is representative of a soft, absorbent, drapable type in which breaking, bursting and tear strengths, thickness and stiffness increase directly with the weight of the material. This sample is characterized by extremely high air permeability.

It will be noted that all of these fabrics are characterized by a more or less unidirectional strength, with the exception of sample L-31. This is an overall bonded and calendered type of carded and blown isotropic fiber web material.

The burning time of each of these fabrics was over six seconds, which, under the method used, would class them as not dangerously flammable.

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ESTIMATED DISTRIBUTION OF FIBERS IN NONWOVEN FABRIC APPLICATIONS 1957-1958

	(Mil. lbs.)*	R+Ac	C	Other
Low End Ind. (padding, wiping, pressed felt)	25–30	20+10%	60%	10%
High Ind. (towel, laminate, filter, coated fabric)	25–30	30+10%	50%	10%
Household (drape, table covers, sanitary products)	20–25	60+15%	20%	5%
Apparel (shoe fabric, inner and outer wear, liners, ribbons, etc.)	10–15	45+15%	10%	30%
	80–100			

	Production	Rayon	Ac	R+Ac	C	Other
Low Ind.	25 Mil. Lb.	5.0M	2.5M	7.5M	15.0M	2.5M
High Ind.	25 Mil. Lb.	7.5M	2.5M	10.0M	12.5M	2.5M
Household	20 Mil. Lb.	12.0M	3.0M	15.0M	4.0M	1.0M
Apparel	10 Mil. Lb.	4.5M	1.5M	6.0M	1.0M	3.0M
	80	29.0M	9.5M	38.5M	32.5M	9.0M
		36.3%	11.8%	48.1%	40.7%	11.2%

* Estimated Production 1957-1958.
R—Rayon
Ac—Acetate
C—Cotton
Ind.—Industrial Use
M.—Mil.—Million
All poundages and distributions are estimates by Howard E. Shearer, based on the sifting of information from various sources related to the supply of materials and production of nonwoven fabrics. They do not constitute an endorsement by American Viscose Corporation.

SOME PRODUCTS IN WHICH NONWOVENS ARE FINDING USE

Acetate Filters
Acoustical Curtains
Adhesive Tape
Air Filters
Aprons
Artificial Leather
Absorbent Applique

Backing Fabrics for Plastics
Bagging (Tea, Food, Perfume, Industrial)
Bandages
Bedpan Covers
Bedspreads
Beer and Wine Filters
Bibs
Book Cloth
Buffing Wheels
Brassiere Cups

Cable Wrapping
Capes
Card Table Covers
Carpet and Rug Backing
Casket Liners
Chafer
Chair Bottom Cloth
Chamois Cheese Wrap
Cigarette Filters
Coated Fabric Backing
Coffee Bags
Cords
Costumes
Curtains
Coveralls

Decontamination Clothing
Diapers
Dish Cloths
Doilies
Doll Cloths
Drapes
Dresses
Dust Cloths

Electrical Tape

Facial Tissues
Falsies
Filter Cloths
Floor Backing
Flower Seed Rolls
Freezer Wrap
Friction Tape

Garment Interlinings
Golf Towels
Grass Mat
Gift Wrapping
Gas and Chemical Filters

Handkerchiefs
Hats
Head Rests
Hospital Pads

Insulation
Interlinings

Labels
Laminated Plastics
Lamp Shades
Liner Fabric
Linings for Collars, Cuffs, Belts Girdles, Handbags, etc.
Linoleum Manufacture
Light Diffusers

Map Backing
Marking Tape
Masks
Meat Wrappers
Medical Supplies
Milk Filters
Molded and Shaped Articles

Napkin, Luncheon, Cocktail, Dinner, Commercial

Oilcloth Backing
Oil Filters

Paint Filters
Parade Floats
Pennants and Banners
Permanent Wave Pads
Petticoats
Pillow Slips
Place Mats
Polished Cloth
Protective Clothing

Quilting

Ribbons
Rug Backing

Sanitary Napkin Cover and Pads
Sausage Casings
Seed Bed Covers and Carriers
Sheets
Shirts
Shoe Fabrics
Shoe Innersoles
Shoe Polishing Cloths
Shrouds
Shoulder Pads
Survey Markers

Tablecloths
Tags
Tapes
Tea Bags
Ties
Tobacco Cloth
Toweling
Tunics

Underlays
Upholstery Backing
Under Garments

Wall Coverings
Wall Paneling
Wash Cloths
Window Shades
Window Dressings
Wiping Cloths
Wire Wrapping
Wrapping Material

SAMPLE BONDING FORMULATIONS

Chemigun Latex 235 (Goodyear)	100 Parts
Zinc Oxide	5
Sulfur	1
Zetox (accelerator-Vanderbilt)	1.5
Titanium Dioxide	5
Aerotex M-3 (Mel. Resin Am. Cy.)	25
Accelerator M-X (Am. Cy.)	10
Buffer DCY (Am. Cy.)	1
Paraplex G-25 (softener R & H.)	30

(Is a polymeric plasticizer with excellent light, ageing, non-migrating properties.)

This formula should give good bonding, light resistance, softness and solvent resistance.

Migration may be retarded to some extent in the latex compounds by adjusting the formulation so that when the saturated base reaches a critical temperature (175°F) during its drying phase, the latex becomes coagulated, changing from a fluid to a solid. This coagulation step fixes the location of the binder and prevents it following the water to the surface of the nonwoven fabric during the driving step. Such steps increase internal bonding and reduce surface friction. Water may be squeezed out after coagulation to speed drying.

Poly Vinyl Acetate

# 1	# 2
72% Water	72% Water
2% PV Alcohol	—
21% Vinrez 202 (PV Acetate)	23% Vinrez 3 R–58
5% Texrez F	5% Texrez F
strong	softer
stiff	flexible

Texrez F is modified urea formaldehyde for better wash and dry cleaning.
Vinrez 3 R-58 is internally plasticized PV Acetate manufactured by Stein, Hall and Co.

1 gives relatively strong bonding effect on relatively stiff fabric

2 gives softer hand and greater flexibility

PARTIAL LISTING OF PATENTS PERTAINING TO NONWOVENS

2,039,312	Goldman	5/5/36	Chicopee	
2,269,479	Reed	1/13/42	Kendall	Method for Making Nonwovens
2,277,049	Reed	3/24/42	Kendall	Process for Manufacturing with Thermoplastic Fiber Binders
2,437,689	Francis	3/16/48	AVC	Process for Making Needle Felt
2,451,915	Buresh	10/19/48	Curlator	Machine
2,459,803	Francis	1/25/49	AVC	Method of Producing Bonded Felt
2,464,301	Francis		AVC	
2,477,675	Wilson Et Al	8/2/49	West Point	Air Forming
2,478,148	Wilson Et Al	8/2/49	West Point	Machine for Producing Nonwovens
2,483,405	Frances	10/4/49	AVC	Method of Producing Fibrous Product
2,486,803	Seymour	11/1/49	H. H. Frede Co.	Absorbent Fibrous Sheet
2,503,024	Boese	4/4/50	M. M. M.	Decorative Rayon Fabric
2,521,985	Lang	9/10/50	American Felt	Process for Making Bonded Fibrous Units
2,522,526	Manning	9/19/50	AVC	Spinning Gun for Producing Nonwoven Fabric
2,522,627	MacGregor	9/19/50	Courtaulds	Cynoethylated Fibers—Nonwovens
2,528,129	Francis	10/31/50	AVC	Web and Woven Fabric Base
2,531,594	Abrahams	11/28/56	Koffy-Pak	Nonwoven Sealed Coffee Bag
2,535,919	Happey	12/26/50	Courtaulds	Acetylated Fiber Process For Nonwovens
2,543,101	Francis	2/27/51	AVC	Random Nonwoven of Thermo and Non-Thermo Plastic Fibers
2,537,631	Greenup	1/9/51		
2,544,798	Lippman	3/13/51	Celanese	Sweatband of Fibrous Web
2,545,952	Goldman	3/20/51		
2,550,686	Goldman	5/1/51		
2,560,332	Crane	7/10/51		Disposable Diapers
2,569,765	Kellett	10/2/51		
2,577,784	Lynam	12/11/51	Fiber Leather	Dispersing Fiber in Gaseous Medium
BP663,732	Glover	12/27/51		Spray Bonding X Lay
2,581,069	Bertolet	1/1/52	Raybestos Manhattan	Apparatus for Air Laid Web
2,589,008	Lannon	3/11/52		
2,624,079	Duvall	1/6/53	Wood Conversion	Air Laid Apparatus
2,626,883	Boese	1/27/53	M. M. M.	Web Laminated To Yarn
BP695,805	Brt. Cellophane	8/10/53		X Laid Between Parallel Web and Bonding
2,673,146	Kuznick	3/23/54	Raybestos Manhattan	Nonwoven Abrasive Product
2,673,819	Wendell	3/30/54		Batt Bonded With Dispersion of Short Fibers in Resin
2,676,128	Piccard	4/20/54	DuPont	Nonwoven Bonded with Linear Copolyester
2,676,363	Plummer	4/27/54	Chicopee	Isotropic Nonwoven in Air Stream
2,697,678	Ness	12/21/54	Chicopee	Lacelike Recticular Nonwoven Sinuous Band Bonded
2,698,271	Clark	12/28/54	Dick	Enclosed Stream Random Collected
2,698,574	Dougherty	1/4/55	Visking	Pattern Bonding Apparatus
2,700,188	Buresh	1/25/55		
2,704,734	Draper	3/22/55	Glass Fibers	Method for Nonwoven Glass Fibers
2,705,688	Ness	4/5/55	Chicopee	Oriented Web; Articulated Binder
2,705,687	Petterson	4/5/55	Chicopee	Unidirectional Web Bonded In Segmented Patterns
2,705,692	Petterson	4/5/55	Chicopee	Two Plies, Obliquely Dispersed, Lazy Tong Bonded
2,708,644	Dixon	4/17/55	American Cyanamid	Treatment with Polymerized Aldehyde
2,719,795	Nottebohm	10/4/55	Pellon	Process for Mfgr.
2,719,802	Nottebohm	10/4/55	Pellon	Process for Mfgr. with Resin
2,719,803	Nottebohm	10/4/55	Pellon	Foam Binder
2,719,806	Nottebohm	10/4/55	Pellon	Foam Binder
2,725,309	Rodman	11/29/55	DuPont	Coated Nonwoven Bonded with Linear Copolyester
2,726,423	Harwood	12/13/55	Kimberly-Clark	Nonwoven by Combining Drum and Discharge Forces
2,731,679	Kennette	1/24/56	Chicopee	Isotropic; Pneumatically Doffed
2,734,841	Merriman	2/14/56	Dunlap	Resilient Nonwoven
2,748,429	Clark	6/5/56	A. B. Dick	Apparatus for Forming Fibrous Structure
2,768,671	Schock	10/30/56	Alex. Smith	Apparatus for Making Nonwovens
2,774,687	Nottebohm	12/18/56	Pellon	Process of Manufacture
2,774,126	Secrist	12/18/56	Kendall	Process for Felt Like Product
2,774,127	Secrist	12/18/56	Kendall	Process for Felt Like Product
2,774,128	Secrist	12/18/56	Kendall	Process for Felt Like Product

SUPPLIERS

WEB FORMING EQUIPMENT

Cotton Cards: Whitin Machine Works; Saco-Lowell Shops

Woolen Cards: Davis & Furber Machine Co.; Proctor & Schwartz, Inc.

Garnetts: James Hunter Machine Co.; Proctor & Schwartz

Platt Lap Converter: Atkinson, Haserick & Co.

Air Formed Webs: Curlator Corp; Turner Machine Co.

BONDING AND DRYING EQUIPMENT

Calenders: Van Vlaanderen Machine Co.

Dry Cans: H. W. Butterworth & Sons Co.

Hot Air Ovens: Industrial Heat Engineering Co.; Industrial Ovens; Lanly Co.; National Drying Machinery Co.; Proctor & Schwartz; Ross Engineering Div. Midland-Ross Corp.

Infra-Red: Fostoria Pressed Steel Corp.; Edwin L. Wiegand Co.

Impregnators: Rodney Hunt Machine Co.; John Waldron Corp.

Needle Looms: James Hunter

Spraying: DeVilbiss Co.; Binks Mfg. Co; Paasche Air Brush Co.

DYEING & FINISHING EQUIPMENT

Padders: Morrison Machine Co.

Jigs: Van Vlaanderen

Printing: Rice Barton Corp.; Butterworth; MacDonald & Sons, Inc.

Embossing: Van Vlaanderen

Napping: Woonsocket Napping Machinery Co.

Sueding: Woonsocket

ADHESIVES

Acrylic Ester: Rohm & Haas Co.

Acrylonitrile: Naugatuck Chemical Div. U.S. Rubber Co.

Butadiene-acrylonitrile: Goodyear Tire & Rubber Co.; Goodrich Chemical Co.; Naugatuck Chemical Div., U. S. Rubber Co.

Butadiene-styrene: Goodyear; Goodrich; Koppers Co., Inc.; Naugatuck Chemical Div. U. S. Rubber; Wica Chemicals, Inc.

Chloroprene: The Du Pont Co.

Vinyl acetate: Borden Chemical Co.; Du Pont; National Starch Products, Inc.; Wica

Vinyl chloride: Goodyear; Goodrich; Borden

Polystyrene: Koppers; Dow Chemical Co.

FIBERS

Acetate: Celanese Corp. of America; Eastman Chemical Products, Inc.

Acrylic: Chemstrand Corp.

Rayon: American Viscose Corp.

Polyamide: Du Pont

Nylon Trailer Tarpaulins

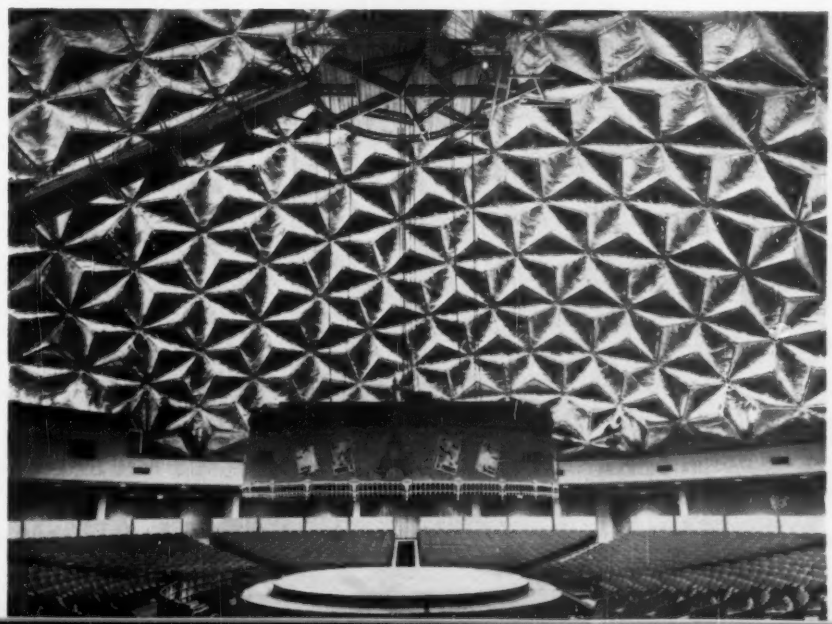
White open-top-trailer tarpaulins of a new material—nylon coated with "Hypalon" synthetic rubber—are said to have solved a variety of problems of Carolina Freight Carriers, according to Du Pont's product information service. Advantages of the new tarpaulin, the trucking company reported, are: its translucence permits loading without use of floodlights; it reflects heat; cleans easily with soap and water; weighs only 48 pounds, less than a third of the 154-pound weight of conventional canvas tarpaulins. *For further information write the editors.*

Midweight Dacron Topcoats

Barron-Anderson Co. has introduced a midweight topcoat, its Balsport, model, which is made of a midweight fabric of nine to 10-ounces. The fabric, for wear in January through March, is from Raeford Worsted Corp.'s 2/80s range of 55 per cent Dacron polyester fiber blended with wool. The topcoats, tailored to sell at $79.50 to $85, are made of a bedford cord fabric. Michaels-Stern, Kuppenheimer, and Eagle Clothes also are planning midweight topcoats in a gabardine of the same Raeford range. *For further information write the editors.*

Aluminum Laminate Cloth

More than 4,000 yards of a special aluminized asbestos cloth serves as the interior lining of this huge aluminum geodosic dome enclosing the new Casa Manana Opera House in Fort Worth Texas. The aluminum foil laminated to the asbestos cloth serves as a fire-resistant moisture barrier with a decorative interior surface that is easily cleaned and never needs painting.



RING MAKER'S WARES—At the exhibit of Herr Mfg. Co., the new Herr "M" type conical ring attracted attention.

TALKING IT OVER—Sonoco Products Co. found interest lively in its cones, tubes, spools and other products for the textile field.

BIG BEAMS ON DISPLAY—Hayes Industries displayed several new beams.

New Machinery

(Continued from Page 40)

magazine, September, 1958, page 35. It is marked by its narrow width (27" overall); and its individual drives for each spindle replacing the conventional cylinder and underframe tape tension pulleys. Among the advantages of the new frame, according to Whitin, are improved yarn quality along with greater frame cleanliness and decreased operating, production and maintenance costs.

Among millmen looking for ways to produce improved yarn at lower cost, exhibits of spinning rings and other equipment for sipnning frames received considerable attention. Herr Manufacturing Co., Inc., of Buffalo, N.Y. in its broad display of spinning rings featured its new "M" type conical ring. Utilizing the principle of capillary attraction the new ring is supplied with oil from only one oil cup. The oil flows to an annular reservoir within the ring and then is drawn by capillary action through the seams to both top and conical bearing surfaces. The traveler then distributes the oil to provide the needed lubrication.

Advantages of the new ring claimed by Herr are use of less oil; longer traveler life because of uniformity of lubrication; longer ring life; cleaner yarn; faster operation without extra wear to ring or travelers; and a reduction in yarn breakage in that tension is automatically adjusted by the action of the traveler and conical design of the ring.

New Whitinsville Rings

Two new spinning rings were displayed at Greenville by Whitinsville Spinning Ring Co., Whitinsville, Mass. One, the "anti-wedge" ring, is said to permit maximum advantage from elliptical travelers. Whitinsville points out that the top of the ring is flat; the web is offset; and the inner flange is contoured to the traveler, providing a new concept of the bearing area. This new concept, Whitinsville says, separates the yarn room area from the traveler bearing area. The design of the yarn room area prevents wedging or trapping of the yarn at high speeds.

The traveler bearing area provides the low gravity elliptical traveler with a long bearing contact, lower pressure per square inch, hence greater heat dissipation. The offset web prevents traveler horns from touching.

The advantages of these features, Whitinsville says, are that yarns run freer and travelers cooler at high speeds in an accurately controlled orbit. Whitinsville points out that the new "anti-wedge" ring permits elliptical travelers to be used for the first time to maximum advantage.

The second ring displayed by Whitinsville was the firm's new diamond finish "backslope" ring, said to have the advantage of keeping nylon travelers from flying off at high speeds. Other advantages cited for the "backslope" ring are operation at higher speeds; longer traveler life; less lubricant consumption, and greater cleanliness. In one test, Whitinsville reports, a nylon traveler required 8¼ pounds pull to remove it from a "backslope" ring, but the same traveler pulled off an ordinary ring at 4½ pounds.

For modern spinning frames, Hartford Machine Screw Co., a division of Standard Screw Co. Greenville, S.C., had in operation an improved top drive filling spindle running at 15,000 revolutions per minute. Advantages of the spindle, as pointed out by Hartford spokesmen, are a 25/32" whorl which results in higher spindle speed and hence more pounds and greater yardage of yarn per hour. The spindle's pre-greased ball bearings results in cleaner yarn, it is said, and more uniform yarn tension with less ends down and cleaner rails and floors. Hartford also had on demonstration its autolatching bobbin holder which accommodates bobbins from 8 x 4 to 12 x 7.

Higher Speeds Stressed

Other spinning frame developments that aroused interest at the show were the "vertical Y" frame of F. A. Young Machine Co., Gastonia, N. C. and the O-M Japanese frame shown by E. S. Rudnick of New Bedford, Mass. Advantages claimed for the 24" Young frame are straight line drafting from trumpet to traveler because the rolls are directly over the top of the spindles. This feature is said to result in higher speed with less twist. For the O-M frame these advantages are cited: super high-draft spinning with elimination of roving—the frame is said to spin 12's to 120's cotton yarns directly from sliver; high quality yarn; adaptability to man-made staple fibers up to 3" in length; savings of 20% in overall spinning room floor space.

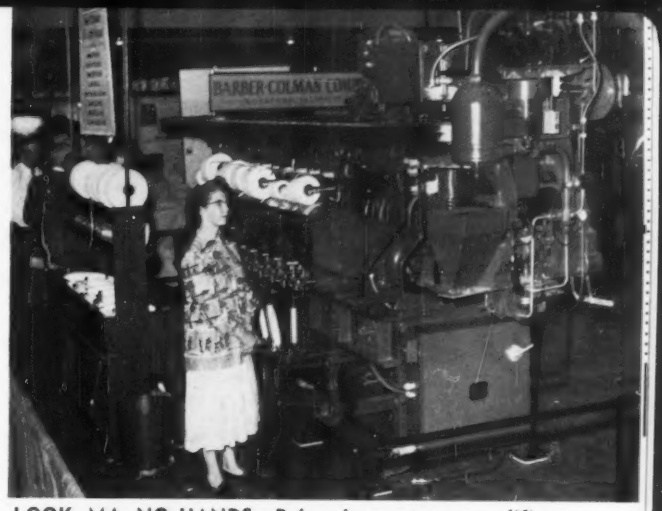
At the show, Warner & Swasey demonstrated publicly for the first time its latest Pin Drafter model. The new machine is said to offer important advantages in drawing operations for worsted and synthetic yarns. According to a company spokesman, the new pin drafter, known as the wide setover model, offers 33% greater pinning area and input capacity than its predecessors. Claimed for it is that it can handle all of a mill's pin controlled drawing needs including backwashing and assembler operations in addition to precombing jobs. Pin drafters are said generally in yarn drawing to combine high output, efficiency and low maintenance requirements. They can be used in drawing operations on the Bradford, French, American and Jute yarn preparation systems.

Miniature Carding Machine

Also of interest in yarn preparation was the display of Howard Brothers, Worcester, Mass. The company had on show samples of its wide line of card clothing for woolen, worsted, cotton, asbestos and silk cards as well as napper clothing and brush clothing. Of special interest at the Howard display area was a sample blender said to be the equivalent of a three breaker woolen card. The blender is intended for use in laboratories, dye houses and fabric designers' workshops. Uses to which the 32-inch high table model blender can be put are matching shades, testing fibers, and determining the fiber make-up of desired blends by using small quantities of fiber. The blender was designed by Howard engineers and built in Howard's machine shops. The company has received many inquiries from persons interested in buying a copy of the machine that was demonstrated at Greenville.

Recent innovations in winding, spooling and twisting machinery—all aimed at faster production and reduction in labor—were prominent at the Exposition. Barber-Colman Co., Rockford, Ill., and Greenville, S. C., featured in its big display area its new

(Continued on Page 75)



LOOK, MA, NO HANDS—Relaxed operator exemplifies high degree of automatic functioning of Barber-Colman's new spooler.

QUESTION-AND-ANSWER PERIOD—Visitors crowded the booth of Howard Brothers to learn about recent developments in card clothing.

SERIOUS STUDY—The keen interest of this millman in a Crompton & Knowles loom typified the mood of most visitors to the show.

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- **Fast to gas-fading.**
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NEW FABRICS

NEW YARNS

Urethane Foam Linings

Burlington Men's Wear Fabrics Co., McCampbell and Co., and Spinco Fabrics, Inc., (a subsidiary of Cone Mills, Inc.), are now supplying garment makers with fabrics that have urethane foam interlinings already laminated to them. This was recently disclosed by Scott Paper Co., producer of "ScottFoam," a urethane foam. Scott also announced appointment of Charles W. Carvin Co., Inc., New York converter and distributor of linings and interlinings, to sell interlinings with ScottFoam insulation directly to garment manufacturers. The new development, Scott pointed out, applies to the three main textile industry areas: woven man-made fibers; woven cotton, and knitted cotton and cotton-blended materials.

Polyethylene Seat Cover

Three companies have joined hands to place on the market what is described as the first colorfast all-polyethylene auto seat cover fabric. Technical Textiles, Inc., is the exclusive weaver and sales agent of the finished fabric. The yarn used is "Reevon" polyethylene filament, extruded by Reeves Brothers, Inc. The basic resin is "Fortiflex," a polyolefin polymer plastic produced by Celanese. The yarn is reported not to deteriorate or fade when exposed to the sun. A damp cloth cleans the new fabric. *For further information write the editors.*

Dynel Boat Blanket

A multi-purpose blanket of Dynel and vinyl materials, trademarked "Ulmerwarm," is being manufactured for national distribution by Charles Ulmer, Inc., makers of sails and boating equipment. The blanket is of two-ply construction with fabric of Dynel, Union Carbide's acrylic fiber, on one side, and a layer of vinyl on the other. The combined properties of both materials offer warmth, water repellency, mildew and fire resistance, and washability. The blankets are excellent for boating, as they can be folded to book size for easy storage. They also lend themselves to many other forms of outdoor activity. *For further information write the editors.*

Forum Discusses Impact of Labeling Law

A forum to discuss the probable effects of the new textile products identification act was held in New York City Nov. 13 under the sponsorship of the Textile Distributors Institute. Some 150 representatives of the textile and apparel manufacturing industries participated in the discussion whose purpose was to formulate recommendations to be presented to the Federal Trade Commission for a practical application of the law. It was pointed out at the meeting that the Commission expected to have a draft of its new rules for enforcement of the act ready by February. The act becomes effective in March, 1960.

A panel of industry leaders led the discussion at the meeting with Jackson E. Spears, Burlington Industries, serving as moderator. Other members of the panel included Richard Deneau, Richelieu Fabrics, Inc.; Ely Kushel, Weil, Gotshal & Manges; Lester D. Melzer, United Merchants & Manufacturers, Inc.; Bernard Rapoport, M. Lowenstein & Sons, Inc.; Richard Roaman, Reliable Textile Co., Inc.; Walter E. Scholer, American Viscose Corp.; Nat Leavy, Goldstein & Leavy, Inc., president of TDI; Sylvan Gotshal, Weil, Gotshal & Manges, TDI counsel; and Miss Hilda Wiedenfeld, TDI executive director.

Among the major questions concerning the new labeling law brought out at the meeting were:

1. What would be the FTC's rules for labeling garments such as corsets which are often made of several pieces of fabric each with a different multi-fiber construction? John C. Conover of the Corset & Brassiere Foundation, stated that this question had been raised with the FTC but that no indication had yet been made of the Commission's stand on it.

2. Will labels required under the act be required to state only the fiber content of the "predominant fabric" in a given textile product which contains several different fabrics (such as sport shirts with panels or dresses with insets or woven rayon jackets with knit cotton wrist bands) or will the label be required to state the fiber content of all the fabrics in a given product?

Discussing this question, Jules Goldstein, of the National Outerwear & Sportswear Association, said that his group had raised the question with the FTC and the latter gave no indication that it would rule in favor of fiber identification of the fiber content of the predominant fabric only. He pointed out that under the existing Wool Products Labeling law there could not be separate labeling of parts of a garment; that a label was required to give the fiber content of the whole garment.

3. In blended fabric will the label state the respective percentages of the different fibers that go into the yarn, or would the label have to state the actual fiber content after finishing? In this connection the point was made that, in many fabric constructions, there is considerable loss in the fiber content in finishing; and hence fiber content of the finished fabric would differ from fiber content as measured in the mill by what "went into" the yarn. Thus if the FTC did not accept as satisfactory for labeling purposes under the act the fiber content as measured by the fibers blended in making the yarn, then the converter again would have to determine the fiber content of the finished fabric and label accordingly.

4. The question was asked whether the textile and related industries should recommend to the Federal Trade Commission specific tolerance in measuring fiber content of blended fabrics. The panel and audience seemed in general agreement that this matter should be left to the discretion of the Federal Trade Commission.

In opening the forum, Moderator Spears stated that the new fiber identification law had been enacted by Congress but that there were not as yet any rules or regulations under which the textile industry is required to operate. The Federal Trade Commission, he said, is currently in the process of determining what these rules shall be. The intent of the forum, he explained, was to bring out into the open the kind of problems that the textile industry faces in carrying into effect the regulations for enforcement of the new law that will soon be issued by the FTC. The hope of the organizers of the meeting was, he continued, that the discussion which took place would help the FTC in its awareness of the kind of problems that the new law brings to the various sections of the textile and garment manufacturing industry.

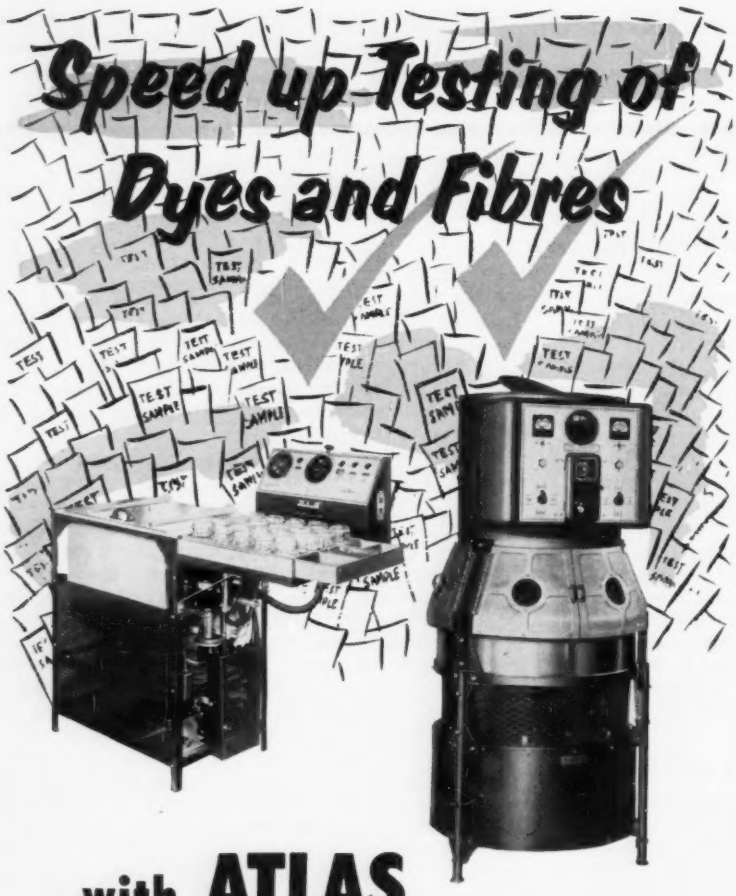
Ribbon Awards Made

The first annual ribbon awards to American designers who most skillfully utilized ribbon in their creations, were presented in New York recently. The awards are sponsored by Ribbon Fashions Associates, comprised of woven-edge ribbon manufacturers in this country. The award winners were:

Karen Stark of Harvey Berin, misses dresses; Clare Potter, sportswear; Anne Klein of Junior Sophisticates, junior dresses; Adolfo of Emme, millinery; Sally Victor of Sally V, young millinery; Sylvia Pedlar of Iris, lingeries, and Treo, foundations.

Japanese Design Center

Over 500,000 new and original designs have been registered during the last three years with the Japan Textile Color Design Center in Osaka, Japan. The center was established in 1955 to prevent the possibility of imitation by Japanese textile manufacturers of the fabric designs of other nations and other Japanese traders, and at the same time help create new designs. Japanese designs are kept abreast of the times, and westernization of Japanese cloths, begun about 30 years ago, has been accelerated in the last decade.



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LAUNDER-OMETERS® FADE-OMETERS®

Mr. George O. Linberg, president of the A.A.T.C.C., in an address at the winter meeting of the Piedmont section, A.A.T.C.C., Greenville, S.C., called attention to the very large number of tests required for a complete evaluation of the qualities of newly developed dyes and fibers.

In stressing the intricacy of testing, Mr. Linberg quoted from the Oct. 1953 issue of "Dye Lines" by American Cyanamid Co., "to test one new dye completely would take about 45,000 tests; to test a new fiber completely, 1,600,000 individual tests are needed. A new dye should be given 25 fastness tests on 225 fiber combinations, each one dyed by four different dyeing methods at two depths of shades. To test a new fiber, Mr. Linberg explained that 500 dyes should be used for 25 fastness properties in 16 combinations with other fibers, dyed by four different methods and at two different levels of concentrations."

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For the DYER and FINISHER

Industrial Fungicides

Three new industrial fungicides, designed to lengthen the service life of fabric and cordage by adding increased fungus resistance to natural fibers, are available from Nuodex Products Co. The new products, called Fungitrol 25, 50 and 100, are colorless and odorless. *For further infromation write the editors.*

Improved Resin Finish

"Zeset" MC, a new thermo-reacting resin finish for imparting durable crease resistance and dimensional stabilization to cotton and rayon fabrics, plus greater resistance to chlorine retention, is now available from Du Pont. The finish was developed especially for use on wash-and-wear fabrics. Use of "Avitex" K softener with the new product is said to impart a desirable hand to treated fabrics, in addition to spot and stain resistance. *For further information write the editors.*

Wash-and-Wear Resin

Chemical Products Corp. has developed a new product,"Wash & Wear Resin El," which is said to be compatible with nearly all resins and finishing agents. Chemical Products reports it imparts a wash-and-wear finish of exceptional durability with unusual resiliency and wrinkle recovery. The product withstands effects of chlorine bleach from washing and maintains the high tensile strength of the original fabric. *For further information write the editors.*

Facts About Vat Dyes

American Cyanamid Co. has published a new booklet, "It Pays to Know These Facts About Vat Dyes," which is intended specifically for use by retailers and sales personnel. The brochure specifies the types of merchandise that should be dyed or printed with vat dyes and tells how retailers or salesmen can obtain vat dyes in merchandise they buy or sell. *For free copies write the editors.*

New Geigy Red Dyestuff

A new dyestuff, said to produce brighter shades of red with excellent fastness on wool, nylon and silk fashion fabrics, has been introduced by Geigy Dyestuffs, division of Geigy Chemical Corp. Called Irganol® Red RLS, it complements the other colors in Geigy's Irganol line. *For further information write the editors.*

Operation Bootstrap

(Continued from Page 32)

With his knitting mill and dye house functioning in the new location the hard-headed realist in Berman's make-up told him it was time to make another and equally important move. Staple goods, he was convinced, were not enough for a knitting operation that wanted to grow and keep healthily wide its margin of profit. Looking around him in the knitting industry, he saw and was impressed by the growing popularity of fancy knitted goods in higher-priced fashion apparel. Along this path, he decided, was the direction for Fair-Tex to move.

In the seven years since Berman made his decision, Fair-Tex, under his astute leadership, has made a name for itself in the field of high fashion knitted fabrics. Currently sales for any given month are over and above the total shipments for the first year and one-half of the firm's existence. There are, of course, a wide range of striped and patterned brightly colored cotton knits in the Fair-Tex showrooms today. But along with cottons, knitted fabrics of man-made fibers including Orlon, Acrilan and nylon are outstanding in the Fair-Tex line. Among these are a variety of fleeces and pile fabrics for women's and children's coats and male leisure wear. Fabrics such as these, Berman says, with their easy care properties, are one of the most promising areas of future expansion for knitwear.

On the whole knitwear outlook in general, Berman, hard-headed realist that he is, is decidedly bullish. The big trend of the times toward more relaxed living, toward insistence by consumers that their apparel be durable, smartly styled and easy to maintain, he believes, gives knitwear a great, an almost foolproof opportunity to expand in the overall textile market. And Berman with his unsurpassed knowledge of knitwear manufacture, his ability to face facts as they are, and his capacity for hard, concentrated effort, intends that his Fair-Tex Mills will get its growing share of the great knitwear market of the future.

Rayon Plant Closes

Rayon textile yarn manufacturing operations at the Roanoke, Va., plant of American Viscose Corp. have ended, according to Henry B. Bitler, vice president and general manager of the company's Fibers Division. The entire Roanoke plant will be sold, including land, buildings and equipment. The plant started operations in 1917, producing continuous filament rayon yarns. Though rayon is today the most widely used of all synthetics as indicated by 1957 total production exceeding 800 million pounds, market demand increasingly favors other types of rayon fibers than those which the Roanoke facility is equipped to make, Bitler stated.

New ATMA Members

The following firms have qualified for full membership in the American Textile Machinery Association: Roberts Co., Gaston County Dyeing Machine Co., Duesberg-Bosson of America, and Tubular Textile Machinery Corp. Approved as associate members are: Howard Bros. Mfg. Co., W. H. Bagshaw Co., Inc., and Dixon Corp.

Teron Polyester Plant

James H. Black

Fiber Industries, Inc. is scheduled to start construction of its Teron polyester plant on a 215-acre site near Shelby, N. C., early in 1959. The company, formerly known as Lindum Fibers Corp., was jointly formed and is owned by Celanese Corp. of America and Imperial Chemical Industries, Ltd., of Great Britain. The plant will be brought into production by stages; it could provide employment for around 1,500 persons when it reaches eventual capacity of 40 million pounds annually.

The plant will produce Teron in both filament yarn and staple fiber form, for major-end uses in apparel and home furnishings.

James H. Black, Celanese's controller, is president of Fiber Industries. Other officers are: Hewison Smith, vice president-marketing; Ian Rutherford, vice president and technical director, and James Brennan, secretary-treasurer.

Wrinkle-Resistant Cottons

Permanent set, and the physical mechanism of wrinkle-resistant treatments, fundamental problems in the development of wash-and-wear cottons, were discussed by Mason DuPré, Jr., in a recent paper before the Cotton Chemical Finishing Conference in Washington, D. C. DuPré is assistant director of the Southern Utilization Research and Development Division of the Agricultural Research Service, the USDA agency charged with utilization research on cotton.

Mr. Dupré supports the theory that slippage, and ensuing loss of elasticity, occur between growth layers as well as between other structural elements of the cotton fiber, and that chemical treatments applied to give a wrinkle-resistant finish do so by cross-linking the growth layers, as well as the other structural elements, thus reducing slippage. *For copies of this paper write the editors.*

New Saco-Lowell Division

Saco-Lowell Shops has created an Automotive and Agricultural Parts Division to handle the company's growing automotive business, it was announced recently by Thomas J. Ault, Saco-Lowell president. Daniel O'Madigan, Jr., is general sales manager of the division. The company recently divided its textile machinery manufacturing into three divisions—Textile Machinery, Replacement Parts, and Gear and Machine. Other of the firm's segments are the International Division and the Research Center.

Ault also announced that Draper Corp. has been awarded contracts to produce a major portion of Saco-Lowell's gray iron castings. In a recent talk before the Biddeford, Me., Chamber of Commerce, Mr. Ault used Saco-Lowell's own diversification as an example for communities which have suffered economic hardship when a single dominating industry slumped, to provide some degree of economic stability for the community.

REPORT FROM JAPAN

By B. Mori

Despite acute problems, Japanese overall outlook is brighter

OSAKA.—When Japan rides the crest of a bumper rice crop, ripples of optimism reach even the depressed textile industries and tend to promote constructive action rather than hand-wringing.

Fifteen rayon staple makers created a Japan Spun Rayon Fabrics Export Association, financed by a loan from city banks, aimed at stabilizing market prices for rayon staple goods by purchasing the overstocks of such textiles which have forced prices downward.

One thousand tons of rayon staple was exported to Soviet Russia by Japan during the period October to November, at the price of 46.8 cents per kilogram. Negotiations are being conducted for an additional 2,000 tons.

Increased Output of Acrylics Expected

Growth of the natural gas mining in the Niigata area is sparking the petro-chemical industry. Some Japanese industrialists predict that production of polyacrylic fibers will increase rapidly. Mitsubishi Rayon has started production of Acrilan; Sumitomo Chemical and Toyo Spinning & Weaving the production of ACC's X-54 fiber, and Asahi Kasei its own Kashimilon. It is reported that technical agreements for production of Orlon will be concluded soon. The production goal set by these companies is 82 metric tons a day by 1960.

Raw Silk Activity Increases

General feeling in the Yokohama silk market is that the time for buying has arrived. The market roller-coasted down to a new eight-year low—$1 per pound below the theoretical Government-support price—then became fairly steady as buyers showed confidence in the relative stability of present low levels.

The market tone was further firmed a bit by action taken at a meeting of the Government and the Liberal-Democratic Party. Spurred on by charges from the Japan Raw Silk Exporters Association that the Government's unstable price support policy had brought about a substantial decline in exports—and bearing in mind the huge farm vote in next spring's election—the meeting decided to purchase 11,250 tons of silk cocoons from this summer's and autumn's crops as a means of stabilizing the sericulture industry.

Cutback in Mulberry Leaf Output

The meeting decided that of 447,750 acres now growing mulberry bushes, 61,250 would be converted to other agricultural products, with a subsidy offered as inducement to the farmers. Also, a bill was formulated for presentation to the Diet for establishment of a new Government-subsidized organization for adjusting supply and demand of cocoons and raw silk. While these measures were acted upon too recently to be thoroughly evaluated by exporters, the feeling was that at least the Government is doing something besides repeating like a broken record the defunct-in-fact support price. The minimum price—190,000 yen—will be lowered soon, the Agriculture-Forestry Minister promised realistically.

The Japan Silk and Synthetic Textile Export Association is working now on export quotas, for the United States and Canada, on failles, chiffons and organdies. Quota is expected to become effective January 1, 1959.

The Japan Cotton Spinning Association decided to continue the 30% production cut-back during January-March 1959. The 30% cut was originally for 1958 only but was continued in view of present stockpiles of cotton yarn and cloth totaling 470,000-480,000 bales, and of the prolonged slump. Even this cut had an optimistic side, since some association members had suggested that the cut-back be increased in view of the unexpectedly slow decrease in stockpiles.

Red China's Competition Watched

With Red China reported to be the third largest textile goods exporter in the world, after Japan and Britain (exact figures unavailable), the Japan Cotton Spinners Association sent a mission to survey China's competition in Southeast Asian markets. The member of the mission found that Communist China has failed to penetrate as deeply as earlier feared into the Southeast Asian cotton goods market. Nevertheless, exports of cotton textiles from Communist China are expected to increase shortly because of the reported bumper cotton crop in China this year. A side-product of the survey was the charge by one of Japan's leading textile goods exporters that Communist China was pirating designs of its products.

(Continued on Page 83)

PAPERS OF THE
AMERICAN ASSOCIATION FOR
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A A T T

Fabric streaks

new technique sheds light on causes

By Ferdinand Schulze
THE DU PONT CO.

STREAKINESS is one of the most common defects in fabrics of continuous filament synthetic yarns. This defect has plagued textile technologists since the beginning of the man-made fiber industry.

Streaks occur in various forms in fabrics. Warp streaks usually appear as sharply defined streaks of either different luster or color. (Figure 1). They may vary in width from single threads to wide bands composed of many warp threads. They may run for many yards and frequently for the whole length of the warp. Filling streaks are usually less sharply defined than warp streaks; they often appear as bands of different color intensity or luster which may be repetitive or cyclic in nature. Some people call this barré.

Fig. 2 shows an example of pirn taper barré in a nylon taffeta. If the periodicity of the defect is of the right frequency, the band may assume various geometric forms such as the familiar diamond pattern. Many streaks are reversible in that their apparent color or luster shifts from dark to light or light to dark when the angle of view changes or the fabric is turned end-for-end.

Another characteristic of typical fabric streaks is the fact that they are objectionably apparent when viewed from a distance but like a mirage they become less apparent at close range and they frequently disappear entirely under moderate magnification. This effect is even seen in window screens where streaks may be visible from a distance and disappear on closer inspection. The end use of a fabric often determines whether or not a particular type of streak is considered an objectionable defect.

Much effort on the part of yarn and fabric manufacturers as well as dyers and finishers has gone into the elimination of streaks. Yarn manufacturers have attempted to control this defect by producing more uniform yarns by establishing tighter controls over such factors as denier, filament count, cross-section, twist, luster, dyeing characteristics as well as mechanical quality factors such as broken filaments, package uniformity, finish content, and general cleanliness.

Although streaks often occur through failure to control these factors, such lapses in quality can usually be traced to their source and subsequently be corrected. Improper weaving and dyeing procedures and equipment also produce streaks even though the starting yarns may have been uniform.

Trouble shooting on a streak problem involves a considerable amount of detective work. A logical and systematic attack on a streak problem should begin by asking three questions:

1. What is the nature of the streak defect?
2. What caused it?
3. Where in the process did it originate?

The answers to these questions would determine how and where to attack the problem.

Dr. Schulze is a research associate in the textile fibers research laboratory of the Du Pont Co. at Wilmington, Md. He received his B.S. degree in chemical engineering in 1923 at Texas A & M College; his M.S. in organic chemistry in 1925 at Iowa State College and his Ph.D. in organic chemistry at Iowa State in 1927. He has been with Du Pont since 1928. Currently he is engaged in basic research on fabric uniformity and fabric aesthetics.

Ferdinand Schulze

Paper delivered at the October 1st meeting of the American Association for Textile Technology at New York, N. Y.

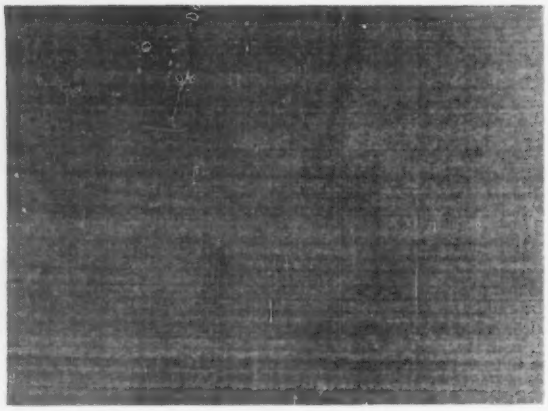


Fig. 1

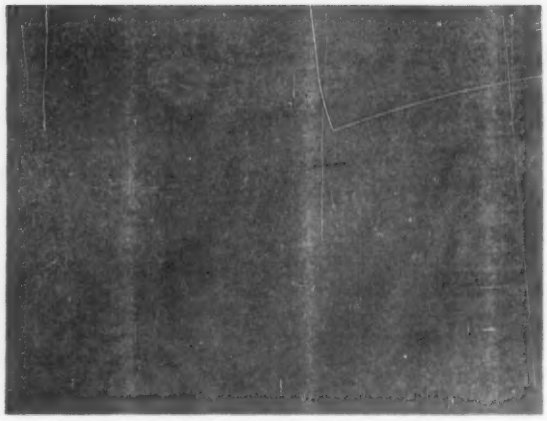


Fig. 2

While the logical course of action would be to answer the first question first, because this could suggest the answer to the second question which in turn might give a clue to the third question, it appears that too many times a streak problem is attacked by attempting to answer only the third question. The usual result of this type of detective work is much knob twisting around that stage of the process where the defect is presumed to originate. Sometimes this empirical procedure is successful in eliminating the defect. The fact that the industry is still bothered with streaks indicates that such lines of attack have not been entirely successful.

In some cases, the nature of streak defects can be determined by examination of the fabric itself or by dissecting the fabric and examining the individual yarns. There are other cases where analysis of the fabric, or the yarns from the fabric, or even the starting yarns, does not explain the presence of streaks.

Although it is generally accepted that streaks may be of various types, as indicated by references in the technical and trade literature to dye streaks, luster streaks and spacing streaks, there has been a tendency to regard most streaks as dye streaks. This has undoubtedly led to much wasted effort when dyers attempted to produce level dyeings in fabrics containing other types of streaks. Difficulties such as these emphasize the need for better information on the nature of streaks and for methods of determining the types of streaks present in a defective fabric.

The principal reason for the common fault of attacking the streak problem in reverse is that it has not been possible to learn much about the chemistry, physics and optics of streaks by use of normally available laboratory tools, such as the microscope. This lack of diagnostic tools had the effect of diverting streak research toward tracing the origin of streaks back to some point in yarn manufacture, textile operations, or weaving.

While such empirical methods have undoubtedly solved many streak problems, it would appear that a more logical attack would be to determine the nature of a given streak before starting a search for the cause and the source of the defect. For example, dye streaks which are presumed to have a chemical basis would normally be attached through the chemistry of the yarn manufacturing or dyeing processes.

On the other hand, physical streaks would ordinarily demand remedies based on the mechanics of the textile or weaving processes. While this line of attack appears direct and logical, it comes right back to the problem of determining the nature of a given streak, even in such an apparently simple case as deciding whether the defect is a dye streak or a luster streak.

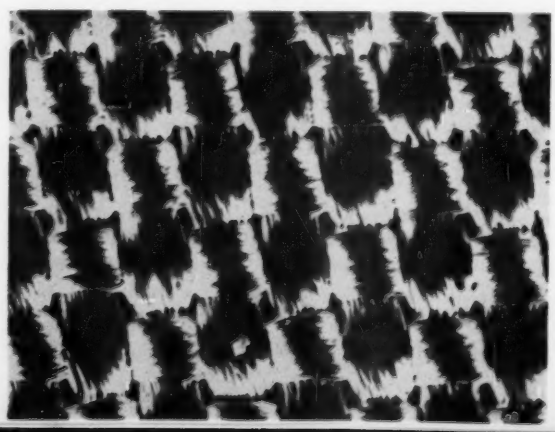
Recently, new insight into the nature of fabric streaks was obtained by the discovery that many streaks can be replicated by pressing the fabric onto a heated plastic film. Every detail of fabric surface can thus be replicated as can be seen in the photographic enlargement of a replica (Figure 3). The basis for this procedure was discovered by Roger La Marche, of Du Pont's Technical Service Section.

While attempting to embed a streaky dyed fabric in a plastic for the purpose of making a cross-section, La Marche laminated the fabric between two sheets of plastic, of the type used for laminating photographs for identifying passes, in a hydraulic press. When this sandwich was peeled apart, it was noticed that the plastic sheets carried an accurate impression of the fabric surface which even included a reproduction of the streaks present originally.

Since it was obvious that dye streaks and intrinsic luster streaks could not be transferred, it was apparent that some sort of physical irregularity had been replicated. A similar effect was demonstrated by K. Schwertassek (1), who made contact prints of fabric surface by pressing the fabric, previously impregnated with 5% ferric chloride solution, against a sheet of paper soaked in 3% potassium thiocyanate solution to produce a ferric thiocyanate image of the fabric surface.

Replication of surface structure of fibers, biological specimens, plastics, and the like, is a common technique in electron microscopy. Preparation of plastic replicas for use in optical microscopy of textile fibers

Fig. 3



has been described by J. I. Hardy (2) and W. Steffens (3). Replicas for microscopic examination of fabric surfaces were made by R. Krammer and C. Marash (4) who allowed a water solution of methyl cellulose to dry on the fabric surface, and by H. Remouth (5) who used a composition designated as ROX-UG.

W. Rotta and G. Scheurich (6) improved on the procedure of Krammer and Marash by filling the indentations of the replica with a dye solution to obtain greater contrast for the preparation of photomicrographs. It appears that the above workers were interested mainly in replication as an aid in microscopy or photomicrography. With the exception of Schwertassek, they were not concerned with examining larger areas of fabric such as is necessary for streak examination.

Plastic replicas prepared by the La Marche procedure of various fabrics proved beyond a doubt that many of the streaks seen in fabrics are not dye or inherent luster streaks at all but must be caused by nonuniformity in fabric geometry.

Preparation of Plastic Replicas

It is possible to prepare plastic replicas very simply by merely pressing fabric in contact with thermoplastic film or sheeting such as cellulose acetate, vinylite, polymethlmethacrylate or polystyrene, between the heated platens of a hydraulic press, as in the method used originally by La Marche. However, for various mechanical reasons, this procedure does not yield reproducible results, and the method illustrated in Figure 4 was therefore developed.

The following equipment and materials are required for the preparation of plastic replicas:

1. Laboratory hydraulic press provided with platens which can be heated and cooled.

2. Brass backing plate ¼ to ⅜″ thick of same area as press platens, with 1/16″ recess milled in central area so as to leave ½″ face around outside. A ⅛″ copper tube is soldered into a hole drilled from edge of plate to inside milled recess for admitting air.

3. Thin rubber sheeting, 0.025 in., of slightly larger area than backing plate.

4. Photographers' chrome-plated ferrotype plate of same area as backing plate.

5. Ten mil optical grade polystyrene film slightly smaller than recessed area of backing plate (obtained from Plax Corp., Stonington, Conn.).

6. Forty psi air or inert gas for pressuring rubber sheet on backing plate.

To make a replica, the rubber sheet is spread smoothly over the backing plate, and the fabric sample to be replicated, cut slightly larger than the backing plate is placed over the rubber sheet. A sheet of 10 mil polystyrene sheeting is then centered within the recessed area of the backing plate over the fabric and the chrome-plated plate is laid on top, polished side down.

This assembly is clamped between the cold platens of the hydraulic press and about 20 to 30 psi air or gas pressure is applied back of the rubber sheet. Pressure on the press platens need be only enough to prevent leakage of air from behind the rubber sheet. For a press with 9″ x 12″ platens, 5 to 10 T ram pressure is sufficient. Heat is then applied to both press platens until platen temperature reaches 105-110°C. and temperature is held there for two

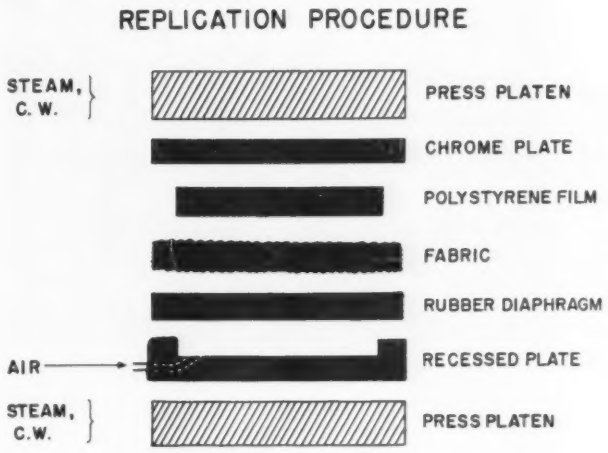


Fig. 4

or three minutes. The assembly is then cooled by admitting cold water to the platens. When the assembly is cold, the air pressure is turned off, the press is opened, and the fabric is peeled from the replica.

By regulating the temperature and air pressure, replicas of various depths can be prepared. At 105-110°C. deep replicas are formed which contain all physical details on one side of the fabric. By lowering the temperature to 95-100°C., and pressure to 10-20 psi, shallow replicas are formed which reproduce only the peaks or crowns of the yarns. Replicas of both sides of the fabric can be made simultaneously by laminating the fabric between two polystyrene sheets during replication. It is essential that the edges of the fabric sample extend beyond the pressure face of the backing place to permit escape of air between the rubber sheet and chrome plate. If only a small fabric sample is available, a piece of smooth fabric or paper is used to cover the rubber sheet.

Replicas can be made of a great variety of woven and knit fabrics by this method. The procedure does not work quite as well with pile fabrics because the pile may become crushed or distorted by the pressure required to press the fabric into the polystyrene sheeting. This difficulty can sometimes be overcome by lowering the air pressure to 5-10 psi, and heating to slightly higher temperature.

As indicated above, other types of plastic sheeting, including Vinylite, polymethylmethracrylate, and cellulose acetate, may be substituted for polystyrene, however, the latter is preferred for its polished surface and lack of curling tendency.

Pencil marks, with a soft pencil, on the fabric specimen will transfer to the replica. Identifying marks and index marks to locate specific streaks can thus be put on the replica.

The precise reproduction of every detail of fabric surface is shown in the photographic enlargement of a replica in Figure 3. Since transparent plastic sheeting is used, it is possible to examine positive or intaglio images of the fabric from the back of the replicas. To reveal maximum streak contrast, they should be held at arm's length and viewed and lighted obliquely. It has been observed that replicas frequently reveal physical streaks with greater intensity than the original fabric.

As indicated previously only those streaks which are related to physical shape or form can transfer

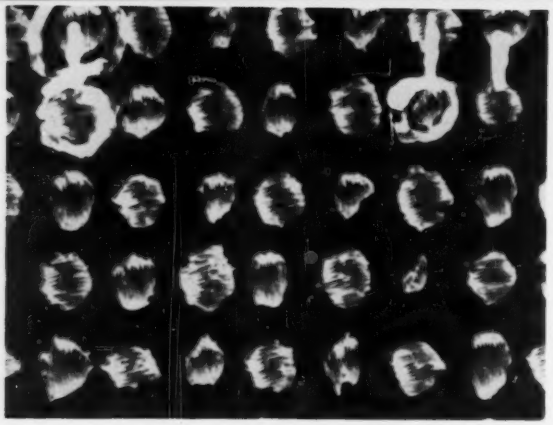


Fig. 5

to the plastic. Obviously streaks which are internal to the fiber, such as variations in dye depth or delustrant content, cannot be imprinted on the replica. Plastic replication is therefore a specific test for distinguishing between internal streaks and external or physical streaks.

The success of plastic replication for demonstrating the existence of internal and external streaks suggested that diagnostic techniques might be devised for detecting still other types of streaks. It also suggested that the above categories might be subdivided into groups. This has been done. We have demonstrated the presence of at least five types of streaks.

Streak Classification

A. Internal Streaks
   1. Dye Streaks
   2. Intrinsic Luster Streaks

B. External or Physical Streaks
   1. Yarn Texture Streaks
   2. Fabric Configuration Streaks
   3. Spacing Streaks

Dye streaks are produced by variations in dyeability of adjacent yarns or groups of yarn. Intrinsic luster streaks are related to internal factors such as variation of delustrant content or voids in the filaments. Yarn texture streaks are related to such factors as twist or crimp which affect the physical texture of the yarn. Fabric configuration is related to the physical configuration of the yarns in the fabric. The nature of this defect is illustrated in a photograph of a shallow replica, Figure 5. Here the replica was prepared at lower pressure and temperature so that only the crowns of the weave are impressed in the plastic. It will be observed that the dimensions of the weave crowns vary, some are larger and others are smaller than average. It is obvious that the smaller crowns are associated with tighter yarns while the larger crowns are due to looser yarns.

Spacing streaks are of course caused by laterally displaced yarns. Reed marks represent one type of this defect in the warp direction. Variation in pick count represents this type of defect in the filling direction.

The following additional tests were employed to differentiate between the above mentioned streaks. They not only prove the existence of these types of streaks but they also serve to detect such streaks in a streaky fabric.

Matte Embossing

The presence of fabric configuration streaks can be confirmed by pressing the fabric between matte or uniformly finely textured surfaces in a hydraulic press at elevated temperature. This erases fabric configuration streaks but has no effect on true dye streaks or intrinsic luster streaks, (Figure 6). Shreiner calendering produces a similar effect.

Matte embossing may be done conveniently in the laboratory by use of a hydraulic press equipped with heated platens. Soft finish paper or fine grain sandpaper, 4/0 grit or finer, provide suitable surfaces for embossing a fine grain structure on woven fabrics. The paper or sandpaper should be backed with a sheet of blotting paper to provide a resilient surface. Pressures of 300 to 500 psi of fabric area must be used and temperature is varied according to the type of fabric. For rayon and nylon fabrics temperatures of 210° to 230°C. can be used; for Du Pont Dacron polyester fiber, 175° to 180°C; for Du Pont Orlon acrylic fiber and acetate, 150°C. The upper permissible temperature is limited by the fusion or decomposition point of the fiber; excessively high temperatures will cause the fabric to stick to the paper. Heat is applied for two or three minutes, the platens are then cooled and the paper or sandpaper is peeled from the fabric.

Embossing by means of a hydraulic press can be used as a diagnostic tool to supplement the plastic replication test. If embossing eliminates streaky appearance, it can be assumed that the streaks were caused by fabric configuration irregularities. If streaks are not erased by this procedure, they may be due to variations in color or intrinsic luster of the yarn. The test will yield additional information if a sample of undyed fabric is matte embossed. When there is doubt about the nature of residual streaks after embossing, a plastic replica of the embossed fabric will indicate if these streaks are incompletely erased physical streaks.

Control

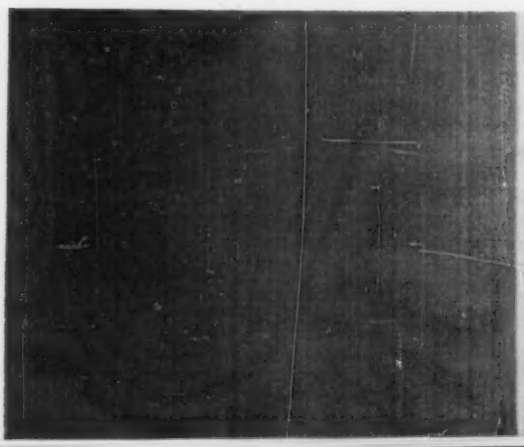
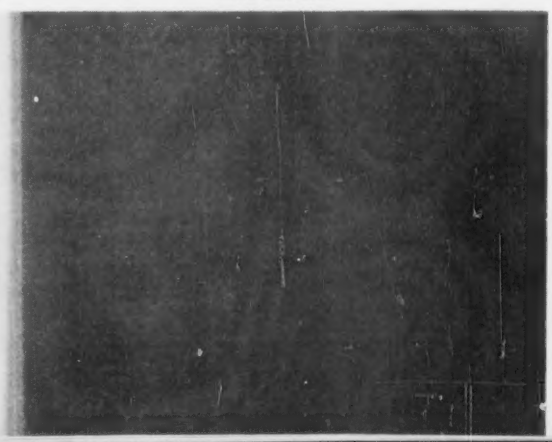


Fig. 6

Matte embossed



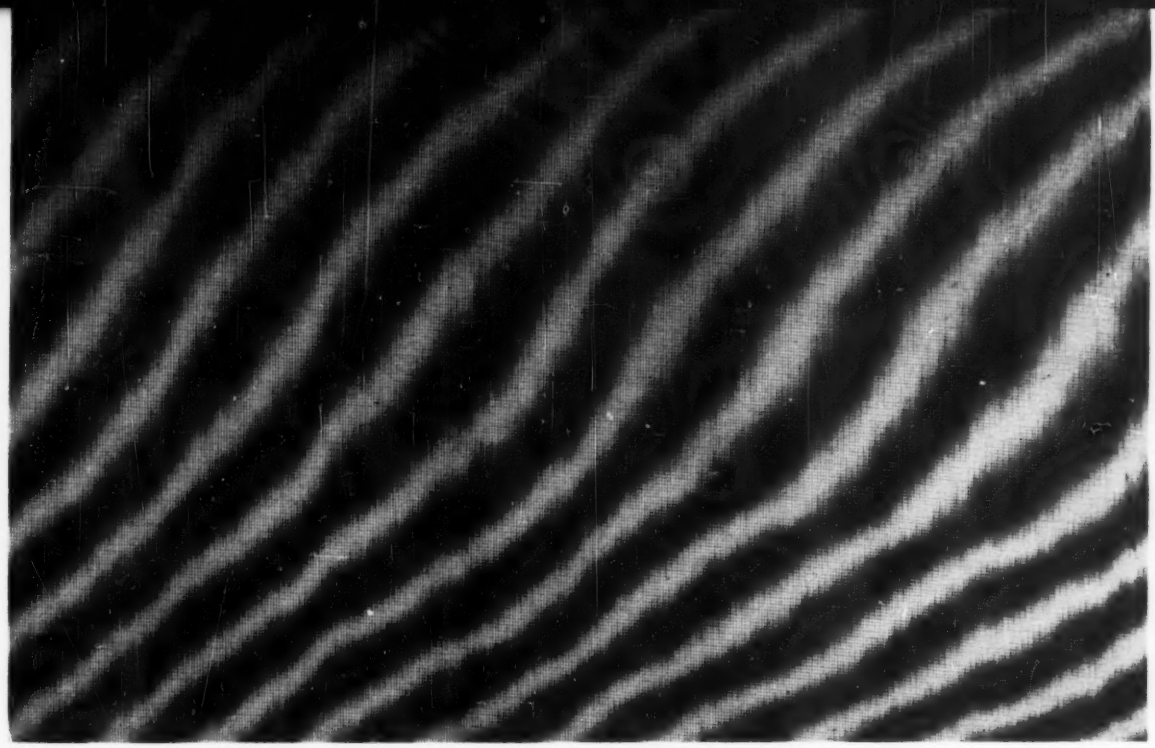


Fig. 7

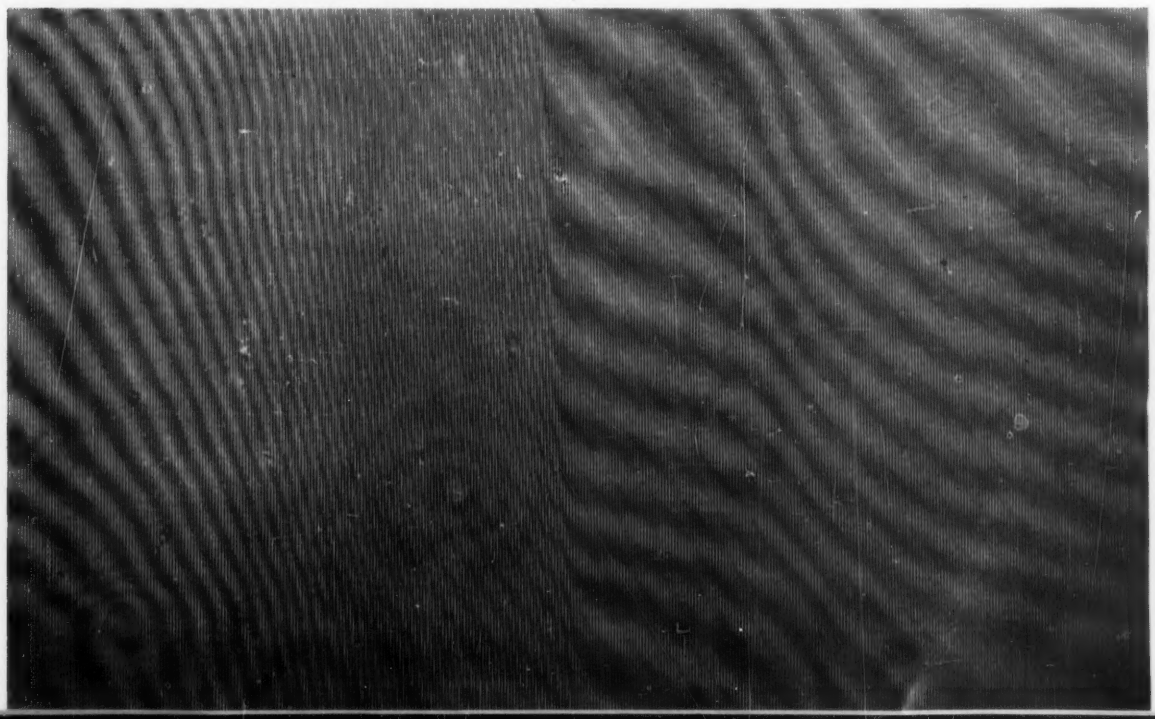
Shirley Line Gratings

Shirley parallel line gratings are glass or plastic plates upon which are ruled accurately spaced parallel lines. The complete set of gratings contains 30 plates, with from 30 to 208 lines/inch. Successive plates vary by approximately 6 lines/inch. Gratings are obtainable in 3-¼ x 4-¼ inch and 8 x 10 inch sizes. The larger size grating is recommended because the smaller grating covers insufficient fabric area to yield a true representation of fabric structure. (*For information as to where to obtain Shirley line gratings, readers may write the editors*).

Operating instructions for the use of these gratings are contained in a Shirley Developments bulletin. To inspect a fabric, a grating containing approximately the same number of lines as the thread count of the fabric is placed over the fabric under strong illumination. Better results are sometimes obtained if the inspection is made by transmitted light by placing the fabric on a light box. If a grating of the right line count is used, a series of parallel interference lines will appear. (Figure 7).

Rotating the grating will cause the lines to rotate clockwise or counterclockwise. If the fabric has an even, uniform thread count, all of the lines will be straight and uniformly spaced. Variation in thread count is indicated by changes in spacing, direction, or by curves and hooks in the lines, (Figure 8).

Fig. 8



The Shirley bulletin explains the significance of the geometric manifestations visible with various types of spacing defects.

The gratings yield very satisfactory results with fairly heavy, firmly constructed fabrics, and somewhat less satisfactory results with loosely constructed, flimsy fabrics which are easily distorted. Distortion of the fabric causes the appearance of a miscellany of lines and whorls which may be confused with true defects.

Observations on a variety of fabrics demonstrate that under proper conditions, very small variations in thread count can be detected with great precision. Variations of less than one thread per inch in a 100 thread per inch fabric are detected easily. Two types of thread count variations have been found through the use of parallel line gratings. One type consists of an abrupt change in pick count, caused for example, by a loom stop. In this case, the grating reveals a sharp change in direction of the interference lines at the junction. The other types consists of a gradual or progresssive change in pick count. This is revealed by curved lines in the interference pattern. Because of the ease, speed, and precision with which a fabric can be inspected by means of parallel line gratings, the use of these gratings as a diagnostic tool is recommended.

Procedure for Analyzing Fabric for Streaks

Ideally, it would be very desirable if the above described diagnostic tests could be organized into a systematic scheme of qualitative analysis that would identify and classify the 30 possible single and multiple combinations of five types of streaks. It is not possible with presently available techniques to unravel all possible combinations of streaks. However, it is possible to determine the presence of the majority of these combinations by the following general procedure.

The first step in investigating a streak defect is a table top examination of the fabric to determine if the streaks are actually associated with the yarns or if they are randomly disposed. If the defect is randomly disposed it could have been caused by creasing or roping during dyeing or finishing. If the streaks appear to be associated with the yarns the fabric is examined by means of the diagnostic tests described above.

The first and simplest test is for spacing uniformity by means of parallel line gratings. This rapid, nondestructive test is specific for spacing uniformity. The next test is the preparation of a plastic replica which indicates the presence or absence of physical or geometric non-uniformities. If streaks are visible in the replica, a shallow replica will indicate if the streaks are due to fabric configuration. Matte embossing supplements the results of deep and shallow replication, and it indicates, in addition, if dye or intrinsic luster streaks are also present. If streaks are erased by matte embossing, it is indicated that dye or intrinsic luster streaks are absent. If streaks are still visible after matte embossing, a replica of the matte embossed fabric will indicate if such streaks are incompletely erased physical irregularities.

Further differentiation between possible dye streaks and other types of streaks can be obtained by examining a piece of the undyed fabric by plastic replication and matte embossing.

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Discussion

Following the presentation of Dr. Schulze's prepared paper, there was a question-and-answer period with questions submitted by the audience. Cameron A. Baker, AATT vice president, served as moderator.

J. A. MARTINI (Duplan Corp.): Can the Shirley grading technique be applied to knitted as well as woven fabric? And if not, what diagnostic technique do you recommend to determine the cause of streaks in knitted fabrics?"

SCHULZE: The Shirley Grading Technique does not work well with knitted fabric, tricot and circular knit, tubing type of knit structure. We have used these techniques very successfully in analyzing the streaks in tricot. If the streaks have a physical basis they can be replicated. If they do not have a physical or geometric basis they will not replicate. Therefore, we can assume that they are internal to the fiber. They are either dye streaks or intrinsic luster streaks. It always helps if you obtain a piece of the undyed fabric at the same time and put that through the same diagnostic tests. By that means you can distinguish between intrinsic luster streaks and dye streaks.

MARTINI: In analyzing an all-nylon fabric, what periodicity of frequency in terms of yards of filling characterizes pirn taper barré for 70 denier and for 40 denier? In other words, is there a characteristic that will spot the pirn taper?

SCHULZE: For 70 denier nylon taffeta the pirn taper is spaced about an inch and a half apart. For 40 denier I don't recall having had such a fabric. I can't tell you just what the frequency is.

BAKER: Here is a question—Is it possible to eliminate streaks by using a more level dyeing procedure?

SCHULZE: If the diagnosis of the streak defect indicates that we have a dye streak, then we are justified in attempting to use a more level dyeing procedure. On the other hand, if we are dealing with a physical streak condition, no amount of level dyeing technology is going to eliminate that streak.

NORMAN B. GOBEIL (J. P. Stevens & Co.): Are these tests applicable to cotton and spun synthetic fabrics?

SCHULZE: We have used these techniques on all types of fibers. They should work on blends such as cotton with synthetics. Any physical irregularity or physical defect or physical streak in a fabric can be replicated.

(Continued on Page 89)

New Machinery

(Continued from Page 63)

type DD automatic spooler for producing a 6—6½ 4° package. Such a package is especially intented for use with shuttleless looms whose advent in the American textile industry has long been heralded. Barber-Colman also points out that the DD spooler has a definite appeal for mills which backwind to sales or knitting cones and for preparation of yarn packages for twisting machinery.

The DD spooler is identical in almost every respect with the Company's Type D automatic spooler except that it produces large cones with 4° tapered sides instead of cheeses with straight sides. The actual size and weight of the cone is much the same as the cheese, but the shape is different. The principal mechanical change is found in the arrangement of the cone spindles on the support arms. As might be expected, the cone spindles on the Type DD Automatic Spooler are tipped downward at a 4° angle instead of being parallel to the drum surface. The drums themselves are the same as on the Type D machine. Provision for magazining is accomplished by putting a few turns of tail on the bottom of the cone starter where it can be easily found and tied to the outer end of the following cone. This tail is put on in Barber-Colman's new Starter Maker machine. Also arrangements can be made to put the magazining tail on the cone of the Spooler if desired.

Unifil on Three Looms

Among winding machinery, the exhibit of Universal Winding Co., Providence, R. I., featured its Unifil Loom Winder. Three of these filling winders were on demonstration under actual mill operating conditions to show the Unifil's ability to run on different looms and wind a variety of filling yarns. One Unifil unit ran on a Draper XP regular loom, winding 200-denier textured Chromspun yarn from a cone supply. Another Unifil ran on a standard X2 loom weaving cotton twill. A third unit operated winding nub yarn on a Draper XD filling-mix loom.

The Unifil Loom Winder winds quills on the loom itself, and thus eliminates many of the handling operations that accompany conventional filling winder operations. Also, the Unifil automatically strips bunch waste from the quill and then returns the quill to the winder spindle by conveyor belt. These operations are done automatically within the confines of the loom itself without an operator ever having to handle the quills.

Universal Winding Co. also exhibited its No. 959 Take-Up Winder and its Twister-Coner. Two models of the Take-Up Winder were on display. One, a two-cop machine, demonstrated a means of taking up man-made fibers such as the 200-denier Caprolan nylon yarn used in the display, for spinning, draw-stretch or other processes. The large packages produced on this take-up machine are then used as a supply on the Twister-Coner where the yarn is twisted and coned in one operation. Two of Universal's Model 10 Ring Twisters were also in operation, plying various yarns to show their versatility.

Big Draper Exhibit

Among exhibits devoted to weaving, Draper Corp., Hopedale, Mass., had on display a 50" high speed X-2 model loom and an 82" XP-2 wide sheeting loom.

INTENT AUDIENCE—Visitors were fascinated by Universal's Unifil loom winder automatically winding quills right on the loom.

HUNTER EQUIPMENT—Hunter's display of its fiber meter blending systems for cottons and man-made fibers was one of the larger exhibits at the show.

HERE'S HOW IT WORKS—W. H. Ridley, manager of Foxboro's textile division (center) explains a point to a curious visitor.

TEXTURIZED WHILE YOU WAIT— U. S. Textile Machine Co.'s Jumbo Texturizer processing Taslan yarns was studied carefully by many visitors.

QUALITY CONTROL KEYWORD HERE—At the booth of Lindly & Co., a variety of devices for better quality control was demonstrated.

VERSATILE GUMS—Penick & Ford stressed its broad line of gums for warp yarn protection in weaving fabrics containing cotton and the newer fibers.

Both looms were equipped with Draper's automatic filling magazine. The magazine is said to reduce filling handling to a minimum. Replacing the conventional loom battery, the Draper magazine is a box-like container that is loaded with bobbins directly from the winder. By an automatic process, the magazine feeds the bobbins to the shuttle as they are needed with no handling required. Along with lower costs, and more continuous loom operation, advantages of the battery are said to be cleaner yarns and fewer cloth seconds.

The Draper 50" loom on demonstration was also equipped with Draper's Tru-Tension let-off said to insure a constant rate of yarn delivery. It was furnished with automatic lubrication of the picking motion, camshaft and crankshaft bearings, and harness cams. The loom operated at 185 picks a minute weaving 48 x 44 spun rayon 15s filling and warp. Among the advantages of the X-2 loom, Draper spokesmen at the show pointed out, are versatility, efficiency and economy. The ability of the loom to handle a wide range of cotton weaves may be extended to synthetics by incorporating the new double roll take-up. A separate wind-up permits doffing the roll of cloth without stopping the loom. X-2 looms are built in cloth widths from 22" to 60".

Wide Sheeting Loom

The Draper 82" XP-2 loom running during the show operated at 153 picks a minute weaving cotton sheeting. The loom, Draper spokesmen stated, can be obtained to weave cloth of 72", 82", 90" and 100" widths. They pointed out that the XP-2 loom has many new features not formerly available on wide sheeting looms which permit it to operate at higher speeds. These features mean, they said, that for the first time on a wide loom increased cloth production is possible with the ease of operation comparable to narrow looms.

A feature of the Draper exhibit that attracted interest was a simplified mock-up of a loom which, operating at slow speeds, illustrated the essential motions and basic parts of Draper looms. The Draper exhibit also included a large display of the company's shuttles, bobbins, rings, spindles and loom accessories.

C & K's Papa Loom

Also prominent among loom exhibits was the display of Crompton & Knowles Corp., Worcester, Mass. The display included the company's new Pick-and-Pick Automatic Loom, or papa loom as it is called for short, and its C-7 loom. Also on display was a narrow fabric needle loom which operated at 1,400 sheds a minute to weave two tapes at once.

The papa loom, which wove worsted cloth, while on demonstration during the show, has the ability to weave, on an automatic bobbin-changing basis, the great majority of pick-and-pick fabrics which heretofore have been woven on non-automatic looms. According to company spokesmen, loom speeds, work assignments and efficiencies for the papa loom on automatic pick-and-pick operation are said to compare favorably with regular W-3 and W-3A looms.

Crompton & Knowles' C-7 loom on demonstration at the show is equipped with push-button starting, stopping and reversing features. These permit start-

(Continued on Page 87)

Textile News Briefs

Pellon Elects Officers

Alexander Westreich has been elected chairman of the board of Pellon Corp., manufacturers of nonwoven fabrics. Also elected were Sven Sternberg as president and Alexis C. Coudert as vice chairman of the board. William M. Klothe and Werner Jacob were named vice presidents, Rolf A. Merton treasurer, and James E. Hughes secretary. Sternberg also was added to the board.

Pellon has started an expansion program which includes addition of 100,000 square feet of warehouse and manufacturing plant facilities as well as development of new types of nonwoven materials.

Cotton Detergency Booklet

"Mechanism of Cotton Detergency," a 16-page booklet presenting a technical analysis of the factors involved in cotton detergency, has been published by Oronite Chemical Co. The booklet evaluates each detergency factor and includes details of soils, the soil-fabric complex, and the role of surfactants and builders in the cleaning. *For copies write the editors.*

New Selling Agency

Dunson & New, Inc., Greensboro, N. C., has been formed for sales of textile machinery and supplies throughout the Southeast. Floyd A. New, president and treasurer, and William B. Dunson, secretary, are principals of the new firm. Dixon Corp. has awarded a sales contract to Dunson & New, Inc., to sell Dixon "extended draft" changeovers for spinning frames.

Vinyl Emulsion Plant

National Adhesives (Canada) Ltd. has begun construction of a vinyl emulsion polymerization plant in Toronto, Ontario. National Adhesives is a subsidiary of National Starch Products, Inc., New York. Output at the plant has been initially set at 5,000,000 pounds of vinyl emulsion annually, expandable to 8,000,000 pounds at a future date.

New Lindly Representative

Lindly & Co., manufacturers of electronic, photoelectric, electromagnetic, optical measurement, detection, inspection and control systems, has appointed Electro-Motion Corp., Charlotte, N. C., as Lindly representative for North and South Carolina and portions of Tennessee and Virginia.

Crest, Synthron Merge

Crest Chemical Corp., Newark, N. J., and Synthron, Inc., Ashton, R. I., have merged. Crest manufactures surfactants, sequestering agents, softeners and dye-fixatives for the textile trade and will function as an independent division of the combined operation. Synthron will continue to manufacture synthetic resisns, durable finishes, detergents and industrial chemicals. The merged company plans a new Southern plant, research and customer service laboratory, with the combined lines of both firms manufactured in the new plant.

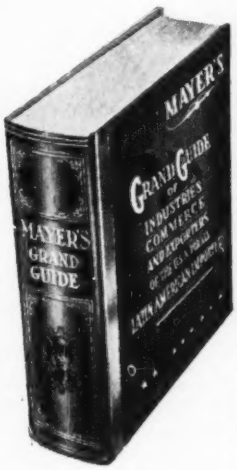
Fabric Yield Chart

A fabric yield chart that determines the yields of estimated widths of materials has been developed by Al Itzkin, a knit goods consultant.The chart, which eliminates the need for slide rules and computing tables, is accurate to $\frac{1}{8}$ of a pound and $\frac{1}{8}$ of a yard in yield percentage. The chart can be applied to any type of soft goods. Single charts cost $3.95 each: a special group rate is available for large quantity orders. *For further information write the editors.*

(Continued on Page 79)

"Mayer's Grand Guide"

AMERICA'S BEST COMMERCIAL AND INDUSTRIAL REFERENCE DIRECTORY



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This will be a very wonderful opportunity for you to present your products to the most outstanding and selective IMPORTERS of the Universe, and assures to you a prompt and widespread promotion if you advertise in MAYER'S GRAND GUIDE. Our No. 9 issue for the year 1959 is in process of advanced preparation and printing will soon commence.

This highly recommended Guide is printed on first class paper, and written in two languages: **English** and **Spanish.**

We still have a few copies available of the 1958 (No. 8) edition. PRICE ONLY . . U. S. $10.00

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BUENOS AIRES (ARGENTINA)

We have a few locations open for REPRESENTATIVES

U. S. MAN-MADE FIBER PRICES

This schedule lists the prices of yarns, staple and tow as reported by the producers in November 1958. All prices are given as subject to change without notice.

CELLULOSIC YARNS

RAYON

American Bemberg

Current Prices

Regular Production Reel Spun Yarn

Den/Fil	No Turn Skeins	Turned* Skeins & Cones	8½ Turns	High Turn Skeins & Cones 12 Turns	15 Turns	18 Turns
40/30	$1.49	$1.95	....	....	....	$2.08
50/36	1.24	1.50	....	....	....	1.80
65/45	1.14	1.30	....	$1.53	....	1.58
75/60**	1.04	1.18	....	1.41	$1.46	1.49
100/74**	.95	1.08	....	1.33	1.38	1.44
125/60	.94	1.05	$1.09	1.30	....	....
150/120	.93	1.02	1.12	1.27	....	....
300/225	....	.95	....	....	1.08	....
900/372	....	.85	....	....	....	....
1800/744	....	.85	....	....	....	....

* Turn includes twists up to 6 turns on 40 and 50 denier, and up to 5 turns on heavier deniers.

** Spun Dyed Cupracolor Black 15¢ per lb. extra.

"44" HH Spool Spun Yarn

Den/Fil	No Turn Tubes	No Turn Beams	5 Turn Beams	5 Turn Cones	12 Turn Beams	12 Turn Cones	15 Turn Cones
40/30	$1.35	$1.35	....	....	....	....	....
50/36	1.00	1.00	....	....	....	....	....
65/45	1.05	....	....	....	....	$1.42	....
75/45*	.97	....	$1.08	$1.08	$1.31	1.31	$1.39
100/60*	.89	....	1.03	1.03	1.23	1.23	1.31
125/60	.84	....	.99	.99	....	....	....
150/90*	.77	....	.81	.81	1.15	1.15	1.24
150/120	.81	....	....	.93	....	....	....

* Available also in Spun Dyed Cupracolor Black at 15¢ per lb. extra.

"44" HH "Parfe" (Type 51) Spool Spun Yarn

Den/Fil	No Turn Cones	5 Turn Cones	5 Turn Beams	12 Turn Cones	15 Turn Cones
50/36	$1.60	$1.85	$1.85	....	....
75/45	1.45	1.55	1.55	$1.75	$1.85
100/60	1.35	1.45	1.45	1.65	1.75
150/90	1.18	1.25	1.25	1.60	1.70

Nub-Lite (Short Nubbi)

Code	Den/Fil	2½ Turn Natural Cones	2½ Turn Cones*	5 Turn Natural Cones	5 Turn Cones*
1515	160/90	....	....	$1.45	$1.35
1519**	155/90	....	....	1.45	1.35
2008	200/120	....	....	1.06	.96
3002	315/180	$1.10	$1.00	....	....
4011	410/224	1.10	1.00	....	....
6001	600/360	1.08	.98	....	....
8001	860/450	1.08	.98	....	....

* Basic price for cones when dyed. Dyed Colors 30 and 35 cents above basic price. Prices based on 200 lb. dyed lots only. Prices for natural yarn skeins same as natural cone prices.

** Code 1515 can be run in warp or filling.

CUPIONI Type B

Code	Den/Fil	2½ Turn Cones	5 Turn Cones
9610	50/30	....	$2.14
9650	70/45	$1.64	....
9660	100/60	1.48	....
1545	150/90	1.25	....
9720	200/120	1.20	....
9730	285/135	1.10	....
9792	450/225	1.10	....
9814	600/372	1.07	....
9837	940/372	.97	....

"Spun Dyed Cupracolor is spun 150, 285, and 940 deniers at 35¢ per pound extra. Cupracolor Black comes in all deniers."

STRATA SLUB

Code	Den/Fil	Turned Cones	Price
9747	275/225	3½	1.20
9798	450/372	2½	1.10
9823	600/372	2½	1.05
9847	960/372	2½	.97
9885	1290/372	1½	.95
9934	2680/744	1½	.95

"Spun Dyed Cupracolor is spun in 600 and 960 deniers at 35¢ per pound extra."

FLAIKONA

Code	Den/Fil	Turned Cones	Price
9669	150/148	2½	$1.35
9769	300/224	3½	1.40
9807	600/403	2½	1.20
9840	900/450	2½	1.10
9924	2000/744	2½	1.00

"Spun Dyed Cupracolor Black 35¢ per pound extra."

Terms: Net 30 days, F. O. B. shipping point. Minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight allowed to Memphis, Tennessee. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F. O. B. delivery point.

American Enka Corp.

Current Prices
Effective July 25, 1958
Standard Quality Yarns

Standard Quality Rayon Yarns

NATURAL

Den./Fil.	Luster	Turns	Weaving Cones	Skeins Beams	Skeins Long	Skeins Short	Cakes	Knitting Cones	Tubes
50/18	E	5 S						1.56	
50/20	B	2.5 S					1.45		
75/10	B	3 S&Z					.95		
75/18	E	4 S						1.07	
75/30	B	2.5,4S&Z	1.07	1.07	1.15	1.19	.95		
75/30	B	8 S	1.17		1.32	1.37		1.17	1.22
75/45	P,E	2.5, 4,5S&Z	1.07	1.07	1.15	1.19	.95	1.07	
75/60	B,P	3,4 Z	1.09				.97		
100/14	B	3 S&Z				1.03	.83		
100/40	B,E	12 S						1.22	
100/40	B,P,E	4.5 S&Z					.83	.91	
100/40	B	6 S	1.10		1.19	1.24	1.02		
100/40	B,P	2.5,4S&Z	.91	.91	1.00	1.03	.83		
100/60	B	4 S&Z					.83		
100/60	E	2.5 S	.93	.93			.85		
125/40	E	3 Z					.80	.83	
150/40	B,P,E	2.1,3S&Z	.76	.76	.85	.87	.72	.76	
150/40	B,E	5 S&Z	.84	.84	1.04	1.09	.80		
150/40	B,P,E	8 S&Z	.89	.89	1.09	1.14	.85		
150/90	E	2.1 S&Z	.77	.77			.73		.82
200/40	P	3 Z	.75	.75	.84	.86	.71	.75	
200/40	B	5 S				.95	.88		
250/60	P,E	2.4 Z			.83	.85		.74	
300/30	E	3 S	.75	.79					
300/50	B,E	3 S	.70	.70					
300/60,120	B,P,E	2.1 S&Z	.67	.67	.73	.75	.65	.67	
300/60	B	3.5 S	.67	.67	.73	.75	.65		
300/60	B	7 S	.80			.83			
300/40,120H.T.	B	2.5, 3,4S	.69	.69			.67		
450/80	B,E	3 S	.63	.65	.70	.72	.61		
600/80	B,E	3 S	.65	.67			.63		
600/120	B	3 S	.63	.65			.61		
900/120	B	3.4 S	.63	.65	.70	.72	.61		
900/120H.T.	B	3.6 S	.65	.65			.63		

B—Briglo P—Perlglo (Semi-Dull)
E—Englo (Dull) H.T.—High Tenacity

Jetspun® (Colored Yarns)

Den./Fil.	Tenacity	Turns	Weaving Cones	Beams	Colors
100/40	Regular	2.5S	$1.28	$1.28	All
150/40	Regular	2.1S	1.11	1.11	All
200/40	Regular	8.3S	1.22	1.22	All
300/120	Regular	2.1S	1.03	1.03	All
450/80	Regular	3.0S	.99	.99	All
300/40	High	3.4S	1.05	1.05	All
600/80	High	3.4S	1.01	1.01	All
900/120	High	3.4S	1.00	1.00	All

® Registered Trade Mark for American Enka Solution dyed rayon yarn.

Skyloft (Lofted Rayon Filament Yarns) Natural and Jetspun®

Denier	Denier per Filament	Twist	Natural	Cones or Tubes Black	Other Colors
1000	7.5	3.5S	$.79	$1.14	$1.14
2200	15	3.5S&Z	.67	.77	.84
2700	15	3.5S&Z	.62	.75	.82
4300	8	3.0S&Z	.64	.74	.81
5300	15	3.0S&Z	.63	.73	.80

American Viscose Corp.

Effective July 24, 1958

Graded Yarns

Denier	Filament	Type	Short Skeins	Long Skeins	Cones Tubes	Beams Spools	Cakes
		Regular Turns					
50	20	Bright & Dull	$	$1.59	$1.56	$1.56	$1.45
60	10	Bright	....	....	1.41	....	1.30
75	10-30	Bright	1.19	1.15	1.07	1.07	.95
75	30	Dull	....	....	1.07	1.07	.95
100	14-40	Bright	1.03	1.00	.91	.91	.83
100	60	Dull	....	....	.93	.93	.85
150	24-40	Bright	.87	.85	.76	.76	.72
150	40	Semi-Dull	.87	.85	.76	.76	.72
150	40	Dull	....	....	.76	.76	.72
150	90	Dull	....	....	.77	....	.73
200	10-44	Bright	.86	.84	.75	.75	.71
250	60	Semi-Dull & Dull	.85	.83	.74	.74	.71
300	15	Bright	....	.71	.67	.67	....
300	30	Dull Flat Filament	....	....	....	.79	....
300	44	Bright & Dull	.75	.73	.67	.67	.65
300	234	Dull	....	....	.77	....	.75
450	100	Bright	....	.70	.63	.65	.61

Coloray Fiber Sun Test

Courtaulds (Alabama) Inc., producer of Coloray solution-dyed fiber, has announced that seven of its pastel colors passed a 500-hour exposure test in direct sunlight conducted by the South Florida Test Service. This brings to 17 the number of 500-hour colors out of the 27 offered by Coloray.

New Gossett Divisions

Two new divisions have been set up by Ralph Gossett and Co. to handle new firms it represents in the southern territory. Gossett's Textile Supplies and Machinery Division will handle accounts for Nylco Products, Inc., manufacturers of metallic yarns, and also the complete line of nylon, Dacron, rayon and acetate yarns for Brawer Bros. Silk Co., Inc., Sales for Para-Chem, Inc., producers of synthetic organic chemicals for the textile industry, will be handled by Gossett's Textile Chemicals Division. Gossett also is southern representative for American Paper Products Co., manufacturer of paper cones, parallel tubes, spiral tubes, spools and paper specialties. H. R. Holt, of Burlington, N. C., has been named Gossett representative for eastern North Carolina and Virginia.

Roberts Gets Musgrove Order

Roberts Co., Sanford, N. C., makers of spinning machinery, last month announced receipt of a $250,000 modernization contract from Musgrove Mills, Gaffney, S. C. The contract is said to call for complete modernization of all warp and filling spinning frames representing about 22,000 spindles. The modernization program is already under way and is expected to be completed in January.

Personnel Changes

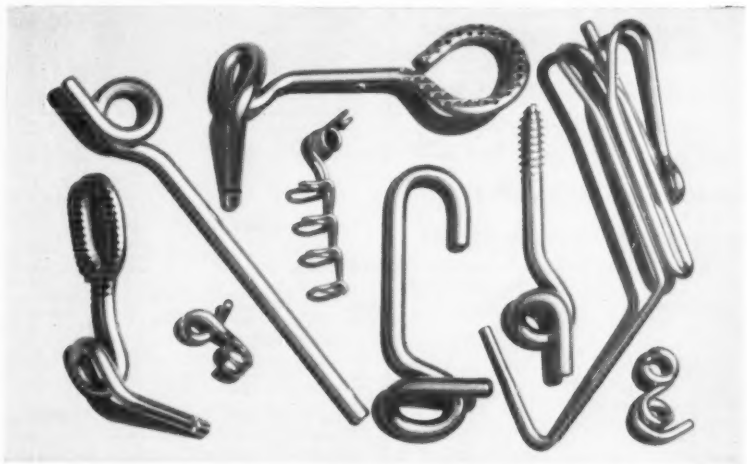
Max W. Winkler has joined the fibers division of American Cyanamid Corp. as a technical service representative. In the same division **William L. Lyall, Jr.** has become director of marketing and reporting to him will be **Erwin G. Walker.**

Ernest Welles has been named chief chemist of Plant #1 at Dexter Chemical Corp. The following have also joined the staff of this plant: **Marvin Eichenblatt,** chemist; **Fielding L. Gentry,** chemist and **Bryan Cropley,** laboratory assistant.

James L. Fesperman has been appointed general manager for the three southern manufacturing divisions of James Lees and Sons Co. The divisions include, The Pine Tree Co., Rabun Mills, and Fontana Mills.

(Continued on Page 81)

WHEN IT COMES TO PROTECTION...



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WALTON and LONSBURY

79 NORTH AVENUE ATTLEBORO, MASSACHUSETTS

600	100	Bright & Dull	....	.70	.63	.65	.61
900	50-60-100-150	Bright	....	.70	.63	.65	.61
1200	75	Bright	....	.70	.63	.65	....
2700	150	Bright	....	.70	.63	.65	....

Extra Turns Per Inch

75	30	Bright	6-Turns	$1.37	$1.32	$1.17	$1.17	$ ....
100	40	Bright	6-Turns	1.24	1.19	1.10	1.10	1.02
150	40	Bright	6-Turns	1.09	1.04	.84	.84	.82
200	44	Bright	6-Turns	....	.95	.90	.90	....
300	15	Bright	5-Turns	....	....	.80	.80	....
300	44	Bright	4.3-Turns	....	....	.70	....	.68
300	44	Bright	6-Turns	.83	.81	.80	.80	.78
300	120	Rayflex	6-Turns	....	....	.87	.87	....
600	30	Bright	5-Turns	....	.78	.76	.76	.74

Rayflex Yarns

75	30	Rayflex	$	$	$1.15	$1.15	$1.06
100	40	Rayflex	....	....	1.00	1.00	.92
150	40-60	Rayflex	....	....	.79	.79	.75
200	75	Rayflex	....	....	.78	.78	.74
300	60-120	Rayflex	....	....	.69	.69	.67
450	120	Rayflex	....	....	.65	.65	.63
600	234	Rayflex	....	....	.65	.65	.63
900	350	Rayflex	....	.72	.65	.65	.63

Thick & Thin Yarns

150	40-90	Bright & Dull	$	$	$1.15	$	$ ....
200	75	Bright & Dull	....	....	1.05	....	....
300	120	Bright & Dull	....	....	.95	....	....
450	100	Bright & Dull	....	....	.89	....	....
490	120	Bright & Dull	....	....	.95	....	....
900	350	Dull	....	....	1.00	....	....
920	120	Bright & Dull	....	....	1.00	....	....

Colorspun Yarns

Denier	Type	Cones/Tubes Beams/Spools
75	Regular Strength	$1.60
100	Regular Strength	1.28
150	Regular Strength	1.11
200	Regular Strength	1.08
300	Regular Strength	1.03
450	Regular Strength	.99
600	Regular Strength	.99
900	Regular Strength	.99
300	High Strength	1.05
900	High Strength	1.00
300	Regular Strength 5-Turns	1.13

Avicron Yarns

Denier	Filament		Cones/Tubes Beams/Spools
1800	100-200	Singles & 2 Ply	$ .68
2700	150-300-980	Singles & 2 Ply	.65

Viscose Filament Yarns

The following material deposit charges are required:

Metal Section Beams	$170.00 each
Metal Section Beam Racks	75.00 each
Metal Tricot Spools—14" flange	30.00 each
21" flange	60.00 each
32" flange	150.00 each
Metal Tricot Spool Racks—14" flange	135.00 each
21" flange	100.00 each
32" flange	75.00 each
Wooden Tricot Spool Crates	20.00 each
Cloth Cake Covers	.05 each

Same to be credited upon return in good condition—freight collect.

Celanese Corp. of America

Current Prices

Effective July 24, 1958

Viscose Rayon Filament Yarn Prices
Bright and Dull

Denier/Fil./Twist		Beams	Cones	Cakes
75/30/3			1.03	.91
100/40/2Z		.90		
100/40/3			.89	.81
100/40/5			.95	.85
100/60/2Z			.89	
100/60/3			.91	.83
125/40/2Z		.86		
125/40/3			.87	.78
150/40/0	NS		.68½	
150/40/2Z	NS	.75		
150/40/3			.73½	.70
150/40/5			.84	.82
150/40/8			.90	.88
150/90/0	NS		.71½	
250/60/0			.68	
250/60/3			.74	.71
300/50/0	NS		.64	
300/50/2Z	NS	.66		
300/50/3			.64½	.63
450/120/0	NS		.61	

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A. east of the Mississippi River. Shipments west of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.

Prices subject to change without notice.

All previous prices withdrawn.

• No transportation allowed (F.O.B. shipping point).

Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Effective with orders July 25, 1958

Bright and Dull

Den.	Fil.	Turns/Inch Up to		Beams	Cones (A) Tubes	Cakes
40	20	3	Textile "Cordora"*		$1.90	$1.85
50	20	3			1.63	
50	20	3	Textile "Cordura"		1.65	1.60
50	35	3	Textile "Cordura"		1.70	
75	10	3	Bright			.95
75	30	3		1.07	1.07	.95
100	15	3	Bright			.83
100	40	3	Bright	.91	.91	.83
100	60	3	Dull		.93	.85
125	50	3		.89	.89	.80
150	40	3		.76	.76	.72
150	60	3	Bright	.76	.76	
150	60	3	Textile "Cordura"		.815	.785
150	90	3	Dull		.77	
150	100	3	Dull		.77	
300	50	2.5		.67	.67	.65
300	120	3	Textile "Cordura"	.68	.68	.66
450	72	3		.65	.63	.61
600	96	3	Bright	.65	.63	.61
600	240	3	Textile "Cordura"	.66	.64	
900	50	3	Bright	.65	.63	.61
900	144	3	Bright	.65	.63	.61
1165	480	3	Textile "Cordura"	.66	.64	.62
1800	100	3	Bright		.63	
2700	150	3	Bright	.65	.63	

Thick and Thin

100	40	3	#7 Bright		1.38	
150	90	3	#7 Bright		1.05	
200	80	3	#7 Bright		1.05	
450	100	3	#7 Bright		.89	
1100	240	3	#60 Bright		1.00	
2200	480	3	#60 Bright		.95	

Monofils

150	1	3	Bright	1.35	1.35	
300	1	3	Bright	1.15	1.10	
600	1	3	Bright		1.00	

Plush

300	30	3	Dull	.79	.75	

(A) 2¢/lb. additional for cones less than 3#.

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

* "CORDURA" and "SUPER CORDURA" are Du Pont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corp.

Effective July 29, 1958

Continuous Process Textile Yarns

Denier	Filament	Turns per In.	Type	2.8 Lb Cones	4.4 Lb Cones and Tubes	Beams	2.2 Lb Tubes
150	40	2.5 "S"	Bright	.76		.76	
150	40	2.5 "S"	Luster #4	.77		.77	
150	40	2.5 "S"	Bright Intermediate strength	.77			
200	20	2.5 "S"	Bright	.75			
300	44	2.5 "S"	Bright	.67		.67	
450	60	2.0 "S"	Bright		.63	.63	
600	90	1.5 "S"	Bright		.63	.63	.63
900	50	2.0 "S"	Bright		.63	.63	.63
900	150	1.5 "S"	Bright		.63	.63	.63
1100	480	2.0 "Z"	Bright extra strong		.65	.65	.65

Lustre #4 is semi-dull.

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River.

Prices are subject to change without notice.

Tiaralon Yarns

Denier	Filament	Turns Per In.	Type	4.4 lb. Cones
450	1	0	Bright and Dull	1.00
450	1	2	Bright and Dull	1.00
1250	1	0	Bright and Dull	1.00
1250	1	2	Bright and Dull	1.00

Tubes— 5¢ per pound over cone prices.

Skeins—10¢ per pound over cone prices.

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River.

Prices are subject to change without notice.

North American Rayon Corp.

Current Prices

Prices Effective July 25, 1958

First Quality Yarns	Den/Fil	Twist	Knitting* Cones	Cones: No Twist Knitting Cones	Weaving Cones	Beams, Tubes**	Velvet Beams & Cones	Untreated Cakes
	75/30	3.5			1.07	1.07	.95	
	75/30	7			1.20	1.20		
	75/30	12			1.28	1.28		
Normal	75/30	15			1.30	1.30		
Strength Yarns	75/30	20			1.33	1.33		
NARCO	100/40/60	3.5			.91	.91	.83	
	100/40	12			1.15	1.15		
	125/52/60	3			.89	.89	.80	

cut production C 3 2 4 1 STS

4 ways! ... with

MECHO AIR GUIDER

1 SAVE by eliminating expensive spoilage!

2 SAVE by cutting handling costs, reducing damage and loss!

3 SAVE by reducing costly equipment repairs!

4 SAVE with the low initial and operating cost of the Mecho Air Guider!

Hundreds of finishing plants bless the simplicity of operating a Mecho Guider . . . no complicated counter-weights or linkages! The sensitive selvage finger points the way to important savings! It handles every imaginable fabric from the lightest to #8 duck; is used in plants handling woven and non-woven fabrics, semi-rigid plastics, artificial leather, rubber, felt and gauze. Constant cloth alignment is maintained at all times.

The precision-engineered accuracy of the Mecho Air Guider, guiding to within an eighth of an inch and ranging from 1 to 400 ypm, is unsurpassed! Stainless steel, acid and moisture-resistant units with sealed bearings are also available.

Mecho offers a valuable Guiding Service. Phone, wire or write for your catalog today. Learn how the Mecho Air Guider can save dollars for you.

The GUIDER Specialty Company
423 W. Rock Ave.
New Haven 15, Conn.

Southern Representative: McSpadden & Scantland
P. O. Box 3635 Charlotte 3, N. C.

News

(Continued from Page 79)

Harold D. Cupitt has been appointed sales engineer in the Philadelphia area for N. Y. & N. J. Lubricant Co.

H. A. Kaiser

Howard A. Kaiser has been elected president of Burlington Hosiery Co., and **George L. Staff** has been appointed executive vice president of Raeford Worsted Corp. Both of these companies are member organizations of Burlington Industries, Inc. At Burlington Hoisery **G. E. Low** and **Thomas B. Sain** have become executive vice presidents, and at Raeford Worsted, Mr. Staff has also been elected to the board of directors, along with **Norman Duberstein** and **E. H. Hines, Jr.**

R. F. McClellan

Robert F. McClellan has been elected vice president of Nopco Chemical Co. and general sales manager of the company's industrial division.

James G. Fox, Jr. has been appointed executive vice president of the National Aniline Division of Allied Chemical Corp. and **J. Warren Carey** has become a vice president. At the company's Barrett division **Ralph A. Stevens** has become manager of market research. **Robert E. Mulcahy** assumes the duties of northern regional sales representative for Allied, succeeding **William H. Metzger**. Reporting to Mr. Mulcahy will be **Nishan Bogosian** and **Harry A. Greene**.

Michael J. Jacobus has been appointed technical representative for the south central district at American Enka Corp.

(Continued on Page 85)

DYERS and THROWSTERS

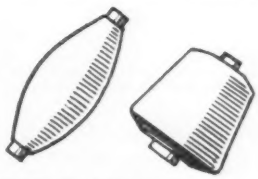
OVER 35 YEARS EXPERIENCE

The Perfect Match

NYLON WORSTED SPUNYARNS DACRON RAYON

HOFFNER RAYON CO.

THE COMPLETE PACKAGE



THROWING
DYEING
PACKAGING

GENERAL OFFICES

General Offices at Belgrade and Ontario Streets, Philadelphia 34, Pennsylvania. Plants at Philadelphia and Quakertown, Pennsylvania.

SALES REPRESENTATIVES

Shannonhouse & Wetzell
Johnston Bldg. Charlotte, N. C.
The Tillinghast-Stiles Co.
Providence, R. I. Chicago, Ill.
R. C. Osborne & Co.
Broad St. & Allegheny Ave.
Phila. 32, Pa.
Carl L. Miller
808 First Nat'l Bank Bldg., Utica, N. Y.

150/42	0		.68½			
150/42/60	3	.74½		.76	.78	.72
300/75	0		.65			
300/75	3	.67		.67		.65
900/46	2.5	.63		.63		
1800/92	2.5	.63		.63		

• Oiled Cones $.01 Per Pound extra for Graded Yarns only.
•• 1 lb. tubes $.02 Per Pound extra for Graded Yarns only.

Terms: Net 30 days, F.O.B. shipping point, minimum freight allowed to consignee's nearest freight station east of the Mississippi River. To points west of the Mississippi River minimum freight to Memphis, Tennessee allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates is sold F.O.B. delivery point.

Prices subject to change without notice.

CELLULOSIC HIGH TENACITY YARN and FABRIC

American Enka Corp.

Effective June 1, 1957

Tempra (High Tenacity)

Denier	Elongation	Beams & Cones
1100/480	Low	.59
1230/480	High	.59
1650/720	Low	.55
1820/720	High	.55
2200/960	High & Low	.54

Suprenka I (Extra High Tenacity)

1650/720	Low	.58
1900/720	High	.58
2200/960	Low	.57

Suprenka II

1100/720	Low	.63
1650/1100	Low	.58
2200/960	High	.57

Terms: Net 30 days, f.o.b. Enka, North Carolina, or Lowland, Tennessee; minimum freight allowed to first destination east of the Mississippi River.

American Viscose Corp.

Effective Nov. 1, 1956
Revised May 29, 1958

Super "Rayflex"

Denier	Filament	Twist	Beams	Cones-Tubes*
1100	980	0	.63	.63
1100	980	Z	.63	—
1650	980	0	.58	.58
1650	980	Z	.58	—
1780	980	0-Z	—	.58
2200	980	0	.57	.57

Tire Yarn

1100	490	Z	.59	—
1650	980	0	.55	.55
1650	980	Z	.55	—
2200	980	0	.54	.54

High Strength

1150	490	Z	.59	.59
1230	490	Z	.59	.59
1650	980	Z	.55	.55
1875	980	Z	.55	.55
2200	980	Z	.54	.54

• When tube put up—10# spinning tube.
First quality yarns are sold "Not Guaranteed for Dyeing".

Tire Fabric

	Tire Yarn Fabric	Super "Rayflex" Fabric
2200/980/2	.625	.655
†1100/490/2	$.71	$.75

Above prices based on 80% minimum Carcass, 15% maximum Top Ply, 5% maximum Breaker.

1650/980/2

•Production Factor			
525-Open	Carcass	$.635	$.665
300-490	Top Ply	.645	.675
115-275••	Breaker	.67	.70

• Determined by dividing total ends by picks.
•• Orders limited to 5% of total 1650 Fabric booked for any given period.
† Revised.

Cord on cones in regular Tire Yarn twists same as fabric prices.
Other twist combinations—prices quoted on request.
When supplied, yarns and cords in special packages take premiums indicated.

10.5 oz. Wardwell tubes	.05
1.5 lb. Regular Braider tubes	.035
Adhesive Dipped yarn	.05

The following deposit charges are made on invoices.

Beams	$55.00 each
Crates (Metal)	75.00 each
Fabric Shell Rolls	3.50 each

Same to be credited upon return in good condition—freight collect.
Terms: Net 30 days.

Celanese Corporation of America

Effective December 27, 1955
Supersedes September 12, 1955

Fortisan Yarn Prices

Denier	Packages	Natural	Black
30/2.5/40	2 lb. Cones	$3.00 lb.	$3.35 lb.
60/2.5/80	4 " "	2.40 "	2.75 "
90/2.5/120	4 " "	2.25 "	2.60 "
120/2.5/160	4 " "	2.05 "	2.40 "
150/2.5/180	4 " "	1.95 "	2.30 "
270/2.5/360	4 " "	1.85 "	2.20 "
300/2.5/360	4 " "	1.85 "	2.20 "
60/2.5/80 Olive Green—Spun Dyed—OG106		4 lb. Cones	3.50 lb.

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A. east of the Mississippi River. Shipments west of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.

Prices subject to change without notice.
All previous prices withdrawn.
• No transportation allowed (F.O.B. shipping point).
Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Fortisan-36 Rayon Yarn
Bright

Denier and Filament	Twist	4# cones	8# cones	Tubes	Beams
270/280	0.8Z	$2.30			
300/280	0.8Z	$2.05			
300/280	3Z	$2.20			
400/400	0.8Z	$1.75			$1.70
400/400	0			$1.75	
800/800	0.8Z	$1.25	$1.25		$1.20
800/800	3Z	$1.40			
800/800	0			$1.25	
1600/1600	0.8Z	$1.15	$1.15		$1.10
1600/1600	2½Z	$1.30			
1600/1600	0			$1.15	

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A. east of the Mississippi River. Shipments west of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.

Prices subject to change without notice.
All previous prices withdrawn.
• No transportation allowed (F.O.B. shipping point).
Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our acknowledgments of orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept. Current Prices
Effective with orders May 2, 1958

"Super Cordura"*

Den Fil	Turns/in	All Packages
1100-720	2	$.63
1200-720	2	.63
1530-960	2	.61
1600-960	2	.58
1650-1100	2	.58
1800-1100	2	.58
2200-1440	2	.57
2400-1440	2	.57

Terms: Net 30 days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

• "CORDURA" and "SUPER CORDURA" are DuPont's registered trade-marks for its high tenacity rayon yarn.

Industrial Rayon Corporation

Effective November 1, 1956

Unbleached Bright High Tenacity Yarns

SINGLE END BEAMS AND CONES:

Den.	Fil.	Turns Per In.	4.4 Lb. Cones	Beams	2.2 Lb. Tubes	4.4 Lb. Tubes
1100	480	1.5 "Z"	.59	.59	.59	.59
1650	720	1.5 "Z"	.55		.55	.55
2200	1000	1.5 "Z"	.54	.54	.54	.54
3300	1440	1.5 "Z"	.54	.54	.54	.54
4400	2000	1.5 "Z"	.54	.54	.54	.54

"Above Prices apply to Type 100. Type 200 Tyron Prices are 3¢ more."

Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges allowed at lowest published rate to all points east of the Mississippi River.

Prices are subject to change without notice.

Type 400 is only available in 1100/720/1.5 "Z" at a price of 63¢ per pound on beams and cones.

North American Rayon Corporation

Super High Strength Continuous Yarn Types 550-552	Cones	Beams
1650/720 1.5Z	.58	.58
Super Super High Strength Continuous Yarn Type 630		
1100/720 2.5Z	.63	.63
1650/720 2.0Z	.58	.58
Tire Cord Fabrics		
Super High Strength Type 550		**Rolls**
1650/720		.66½
Super Super High Strength Type 630		
1100/720		.75
1650/720		.66½

• Oiled Cones $.01 per pound extra for Graded Yarns only.
•• 1 lb. Tubes $.02 per pound extra for Graded Yarns only.

Terms: Net 30 days, f.o.b. shipping point. Minimum freight allowed to consignee's nearest freight station East of the Mississippi River. To points West of the Mississippi River minimum freight to Memphis, Tenn. allowed. Goods after shipment shall be at buyer's risk. Merchandise transported in seller's own trucks or those of its affiliates if sold f.o.b delivery point.

ACETATE

American Viscose Corp.

Current Prices Effective December 21, 1956

Bright and Dull

• Intermediate Twist

Denier & Filaments	Cones & 4-6 Lb. Tubes	Twister Tubes	Warps	Spinning Cones	Twist Warps
55/14	$1.04	$1.02	$1.05	$.98	$.99
75/20	1.00	.98	1.01	.94	.95
100/28	.95	.93	.96	.89	.90
120/32	.86	.84	.87	.80	.81

Japan

(Continued from Page 68)

(Others are keeping an eye on Red China. Hongkong manufacturers and exporters reported that while they were initially affected by the competition, they expect to hold their own. The Singapore Government imposed restrictions on the free import of Communist Chinese textiles. This order is aimed at "dumping" to protect Malaya's small weaving industry. Undercutting by Chinese textiles has also affected Britain most and Japan to some extent.)

However, Japan's export and import trade with Communist China—through Hongkong since the suspension of formal trade in May, 1958—increased during September 20.15 times August's total. Total of imports from Red China was larger than exports to that country, exports which included importantly rayon yarn and cloth, cotton yarn and cloth, staple fiber and cloth.

Plan to Modernize Factories

The Ministry of International Trade and Industry announced a scrap-and-build policy to eliminate surplus production facilities which are undermining the efforts of all industries to improve their supply-demand situation. MITI proposed this drastic measure because almost all major industries of Japan are suffering from overproduction and excess inventory. At the same time, there is an urgent need for disposing of obsolete facilities in order to introduce technical innovations and to stabilize plant operations.

The Bank of Japan stated that the Japanese economy needs not only an adjustment between supply and demand, but also between modern and efficient facilities and obsolete ones, and adjustment between major and smaller enterprises. This adds weight to MITI's plan, but it is expected to meet strong opposition from industries and plants concerned, and also faces financing difficulties.

Foreign Investment Still Coming

The monetary situation in Japan was relatively easy during the first half (April-September) of this fiscal year, compared with the like period of last year, according to the Bank of Japan. The Finance Ministry reported that despite the general business slump and inactive investment in plant machinery and equipment, the nation's introduction of foreign capital and technology is active. The Finance Minister intends to float some $30 million of debentures in the United States after next Spring, a sharp reduction from first plans due to present unfavorable circumstances such as the rising trend of money rates on long-term loans.

The Laurel Leaf

BUSINESS MAGAZINE EDITION

LAURAVEL SC

A versatile softener for finer finishing of all types of yarns and fabrics.

If you are looking for a softener just a "little better than the rest," you should know about LAURAVEL SC, a nonionic softener recommended for the fine finishing of all types of yarns and fabrics . . . especially cotton goods. It's available as a soft liquid paste that's readily dispersable in hot water. It bestows full-bodied softness to fabrics, resists aging, and will not alter shades nor yellow whites.

Much of LAURAVEL SC's wide popularity results from its high resistance to salts, acids, and alkalies. Iit is stable in salt, Epsom Salt, and acid-chrome finishing baths, and may—under certain conditions—be used in the presence of 1% to 2% solutions of salt, making it ideal for softening many direct colors where a salt color fixative is used.

LAURAVEL SC is more compatible than many of its anionic counterparts with other finishing agents, such as resins and dextrines. Fabrics finished with it show excellent resistance to scorching. Used as a top softener in resin-treated goods, it is stable to residual products in the goods. It gives a superior lubrication to improve sewing and cutting properties, and adds good napping characteristics to fabrics. It gives a hand far less limp and raggy when used a a replacement for many conventional oils and softeners in compressive shrinking processes.

It's really easy to prepare and apply LAURAVEL SC—just mix with hot water and add to the last rinse. For finishing mixes, it may be added directly to the batch and boiled up with the rest of the ingredients. And, you can apply it with virtually any type of equipment.

Write for a generous free sample and *see for yourself* what excellent results you'll obtain!

Laurel Brand

Laurel SOAP MANUFACTURING CO., INC.
TIOGA, THOMPSON & ALMOND STS., PHILA. 34, PA.

Warehouses: Paterson, N. J., Chattanooga, Tenn., Charlotte, N. C.

150/41	.77	.76	.78	.72	.73
200/54	.73	.72	.74	.69	.70
300/80	.69	.68	.70	.65	.66

* Standard Twist 2¢ additional.
Terms: net 30 days.

Celanese Corp. of America

Current Prices
Effective December 20, 1956

Bright and Dull

Denier and Filaments	Intermediate Twist 4 & 6-Lb Cones	Beams	4 & 6-TM Tubes	4-Pound Cheeses	Spinning Twist Cones	Beams	O Twist Tubes
45/13	$1.17	$1.18	$	$	$	$1.12	$ ....
55/15	1.04	1.05	....	....	.98	.99	.925
75/20	1.00	1.01	.98	....	.94	.95	.84
75/50	1.02	1.03	1.00	....	....	.97	.89
100/26-40	.95	.96	.93	....	.89	.90	.81
120/40	.86	.87	.85	....	.80	.81	....
150/40	.77	.78	.77	.77	.72	.73	.69
200/52	.73	.74	.73	....	.69	.70	....
300/80	.69	.70	.69	....	.65	.66	.63
450/120	.67	.68	.67	....	.63	.64	....
600/160	.65	.66	.65	....	....	....	....
900/80-240	.63	.64	.63	....	....	....	.61

150 Denier 12-TM Tubes ..... .76
55/0/15 Dull Tricot Beams ..... .985
2-Pound Cheeses ..... .01 Less Than 4-Pound Cheeses
2-BU and 4-Bu Tubes ..... Same Price as 4 and 6-Lb. Cones
2-Lb. Twist Tubes ..... .01 Less Than 4 & 6-Lb. Twist Tubes on 120, 200 and 300 Denier Intermediate Twist

Terms: Net 30 days. Shipments prepaid to any destination in U.S.A. east of the Mississippi River. Shipments west of the Mississippi will be made on a collect freight basis and allowance will be made for the lowest transportation cost to the point of river crossing.
Prices subject to change without notice.
All previous prices withdrawn.
* No transportation allowed (F.O.B. shipping point).
Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Celaperm Filament Yarn Prices

Denier and Filaments	Intermediate Twist 4 & 6-Lb. Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.37	$1.38	$1.31	$1.32
75/20	1.34	1.35	1.28	1.29
100/26	1.28	1.29	1.22	1.23
120/40	1.19	1.20	1.13	1.14
150/40	1.11	1.12	1.06	1.07
200/52	1.03	1.06	1.01	1.02
300/80	1.01	1.02	.97	.98
450/120	.99	1.00	.95	.96
600/160	.97	.98	....	....
900/80	.94	....	....	....

3 to 5 Turns on Cones or Beams — $.02 Additional

Celaperm Black Yarn Prices

Effective March 11, 1955

Denier and Filaments	4 & 6-Lb. Intermediate Twist Cones	Beams	Spinning Twist Cones	Beams
55/15	$1.17	$1.18	$1.11	$1.12
75/20	1.14	1.15	1.08	1.09
100/26	1.08	1.09	1.02	1.03
120/40	.99	1.00	.93	.94
150/40	.91	.92	.86	.87
200/52	.85	.86	.81	.82
300/80	.81	.82	.77	.78
450/120	.79	.80	.75	.76
600/160	.77	.78	....	....
900/80	.74	....	....	....

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.
Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

Arnel Triacetate Yarn Prices
Bright & Dull

Effective August 19, 1958
Supersedes April 18, 1958

Denier and Filaments	Cones	Beams	Thick and Thin Cones
55/WKZ/15	$	$1.10	$ ....
55/2Z/15	1.26	1.27	....
75/WKZ/20	....	1.16	....
75/2Z/20	1.21	1.22	....
100/2Z/26	1.14	1.15	....
150/2Z/40	.95	.96	....
200/2Z/52	.92	.93	1.25
300/2Z/80	.87	.88	1.23
450/2Z/120	.86	.87	....
600/2Z/160	.85	.86	1.21

3 to 5 Turns on Cones or Beams—$.02 Additional
Premium for Black Arnel—$.25 Per Pound
Premium for Navy Arnel—$.37 Per Pound

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.
Prices subject to change without notice.
All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.
Orders are subject to conditions of sale appearing on our Acknowledgments of Orders.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

Acetate

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Bms.
45-13	$1.03	$1.11		$1.12				
55-18	.925	.985		.99			$1.04	$1.05
55-24	.925	.985		.99			1.04	1.05
75-24	.84	.94		.95		$.98	1.00	1.01
75-50				.97		1.00	1.02	1.03
100-32	.81	.89		.90		.93	.95	.96
120-50	.77	.80		.81		.85	.86	.87
150-40	.69	.72	.72	.73	.77	.77	.77	.78
200-60	.68		.69	.70	.73	.73	.73	.74
240-80			.67				.71	
300-80	.63	.65	.65	.66	.69	.69	.69	.70
450-120	.63		.63	.64	.67	.67	.67	.68
600-160					.65		.65	.66
900-44					.63		.63	.64
900-240					.63		.63	.64
1800-88					.61		.61	.62
2700-132					.61		.61	.62
3000-210					.61			.62

(A) Regular Twist (2.9 and 5 T.P.I.)—add $.02 to Intermediate Twist Price.
(B) 1 lb. ⅜" Tubes—add $.02 to 2 & 4 lb. ⅜" Tube Price.

Color-Sealed

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist Twisted Tubes 2 Lb.	4 & 6 Lb.	Cones	Beams
55-18	$1.245	$1.315		$1.32	$1.35	$1.35	$1.37	$1.38
75-24	1.18	1.28		1.29	1.32	1.32	1.34	1.35
100-32	1.14			1.23	1.26	1.26	1.28	1.29
150-40	1.03	1.06	1.06	1.07	1.10	1.11	1.11	1.12
200-64	1.00		1.01	1.02	1.04	1.05	1.05	1.06
300-80	.95	.97	.97	.98	1.00	1.01	1.01	1.02

(A) Regular Twist—Add $.02 to Intermediate Twist Price.

Black

Denier & Filament	Zero Twist Tubes	Beams	Low Twist Cones	Beams	Intermediate Twist 2 & 4 Lb. ⅝" Tbs.	4 & 6 Lb. Tw. Tbs.	Cones	Beams
55-18	$1.045	$1.115		$1.12		$1.15	$1.17	$1.18
75-24	.98	1.08		1.09		1.12	1.14	1.15
100-32	.94			1.03		1.06	1.08	1.09
150-40	.83	.86	.86	.87		.91	.91	.92
200-60	.80		.81	.82		.85	.85	.86
300-80	.75	.77	.77	.78	.81	.81	.81	.82
450-120			.75	.76	.79	.79	.79	.80
600-160			.73	.74	.77	.77	.77	.78
900-240			.73	.74	.74	.74	.74	.75

(A) Regular Twist (2.9 and 5 T.P.I.)—add $.02 to Int. Twist Price.
(B) 1 lb. ⅜" Tubes—add $.02 to 2 & 4 lb. ⅜" Tube Price.

Specialty Yarns

Type 20 Same Price as Regular Yarn
Type C Same Price as Regular Yarn

Thick & Thin

Denier & Filament	Natural Cones	Beams	Black Cones	Beams	Color-Sealed Cones	Beams
200-64 Int. Twist	1.05		$1.15		$1.35	
200-64 Reg. Twist	1.08	$1.09	1.17	$1.21		

Terms: Net 30 days. Subject to change without notice.
Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.
Effective December 21, 1956

"Estron"* Yarn, Bright or Dull — White

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Low Twist Tubes	Beams	Cones	Beams	Zero Twist Tubes	Tricot Beams Spun Twist	Zero Twist
55/13	$1.06	$1.04	$1.02	$1.05	$.98	$.99	$.92½	$.99	$.98½
75/19	1.02	1.00	.98	1.01	.94	.95	.84	.95	....
75/49	1.04	1.02		1.03				....	....
100/25	.97	.95	.93	.96	.89	.90	.81	....	....
120/30	.88	.86	.84	.87	.80	.81		....	....
150/38	.79	.77	....	.78	.72	.73	.69	....	....
200/50	.75	.73	....	.74	.69	.70		....	....
300/75	.71	.69	....	.70	.65	.66	.63	....	....
450/114	.69	.67	....	.68	.63	.64		....	....
600/156	.67	.65	....	.66	.62	.63	.63	....	....
900/230	.65	.63	....	.64	....	....	.61	....	....
Heavier	....	....	....	....	....	....	.56	....	....

Current Prices—December 19, 1955

"Chromspun"*—Standard Colors (Except Black)

Denier & Filament	Regular Twist Cones	Beams	Intermediate Twist Cones	Beams	Low Twist Cones	Beams
55/13	$1.39	$1.40	$1.37	$1.38	$1.31	$1.32
75/19	1.36	1.37	1.34	1.35	1.28	1.29
100/25	1.30	1.31	1.28	1.29	1.22	1.23
150/38	....	....	1.11	1.12	1.06	1.07
300/75	....	....	1.01	1.02	.97	.98
450/114	....	....	.99	1.00	.95	.96
900/230	....	....	.94	.95	....	....

Current Prices

Accurate
Yarn is under perfect tension from a central location. One dial adjustment changes tension uniformly at all tension stations.
The Lindly Electrotense: Simple, compact, inexpensive. Accurately controls yarn tension from zero to about 20 grams.

DIAL CONTROL of YARN TENSION at Any Number of Stations!

The Lindly ELECTROTENSE is the new, inexpensive, electro-mechanical way to control yarn tension from almost zero to about 20 grams. A turn of a single, centrally located dial applies desired tension evenly and simultaneously at all tension stations.

What are the advantages?

The Lindly ELECTROTENSE permits easy, instant change of yarn tension. It results in more uniform beams, more yarn per warp beam, less maintenance and machine down-time, fewer broken ends and better cloth.

GET THE FULL FACTS ON THIS NEW TIME-SAVING, QUALITY-IMPROVING, COST-CUTTING LINDLY SYSTEM. WRITE, WIRE OR PHONE TODAY!

It Pays to Know KNOW the Lindly Count

LINDLY & COMPANY, INC.
248 HERRICKS ROAD
MINEOLA, NEW YORK

News

(Continued from Page 81)

William Castle has joined the sales force of Synthane Corp. His territory will include the northern peninsula of Michigan and all of Wisconsin.

Richard H. Powers has been appointed sales manager for filament yarns at the textile division of Celanese Corp. of America.

Thornton C. Race has been promoted to sales manager at Renovah Spinning Mills, succeeding **Robert F. Fitzpatrick** who was named president of the firm recently.

Arthur Phillips, Jr. has been appointed vice president of the Solvay Process Division of Allied Chemical Corp. and **Harry C. Todd** has been named manager of distributor sales in the same division. **William J. Cannon** succeeds Mr. Todd in his former position as advertising manager. Other recent appointments in the company include **Verne W. Aubel, Jr.**, director of sales, to be assisted by **Robert L. Reynolds**, and **G. Richard Barclay**, manager of the sales department's Organic Chemicals Section.

John T. Rose

John T. Rose has been appointed branch sales manager at Arnold, Hoffman & Co., Inc.'s Charlotte sales office.

John J. White has been promoted to the position of sales administration manager at Universal Winding Co., succeeding Thomas L. Cotter, deceased. Mr. White will be assisted by **Ralph F. Cox. Thomas H. Farrell** has become machine sales technician at Universal and **Samuel J. Stepak**, administrative assistant to the service manager.

Jackie W. Calvert has been named to the sales staff of Whitin Machine Works, at the Spartanburg, S. C. office.

Deaths

Paul E. L. Bruck, salesman for Stein Hall & Co., Inc. He had been with the company since 1953 and prior to that had been connected with Reavertex Corp. and Rubber Corp. of America. Mr. Bruck died suddenly of a heart attack.

LUBRIPLATE IS THE IDEAL LUBRICANT

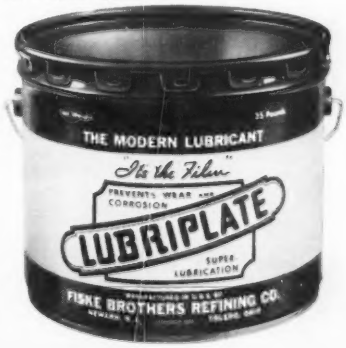
—say leading Textile Manufacturers

LUBRIPLATE Lubricants have won acceptance in the textile industry because even with speeds up to 25,000 R.P.M., they have exceedingly long life and do not break down. LUBRIPLATE Lubricants range from the lightest oils to the heaviest greases to meet every requirement of the textile industry.

REGARDLESS OF THE SIZE AND TYPE OF YOUR MACHINERY, LUBRIPLATE GREASE AND FLUID TYPE LUBRICANTS WILL IMPROVE ITS OPERATION AND REDUCE MAINTENANCE COSTS.

LUBRIPLATE is available in grease and fluid densities for every purpose . . . LUBRIPLATE H. D. S. MOTOR OIL meets today's exacting requirements for gasoline and diesel engines.

For nearest LUBRIPLATE distributor see Classified Telephone Directory. Send for free "LUBRIPLATE DATA BOOK" . . . a valuable treatise on lubrication. Write LUBRIPLATE DIVISION, Fiske Brothers Refining Co., Newark 5, N. J. or Toledo 5, Ohio.



"Chromspun"*—Black

Denier & Filament	Regular Twist Cones	Intermediate Twist Cones	Intermediate Twist Beams	Low Twist & Spun Twist Beams
55/13	$1.19	$1.17	$1.18	$1.12
75/19	1.16	1.14	1.15	1.09
100/25	1.10	1.08	1.09	1.03
150/38	.93	.91	.92	.87
200/50	.87	.85	.86	.82
300/75	.83	.81	.82	.78
450/114	.81	.79	.80	.76
900/230	.76	.74	.75	....

Prices are subject to change without notice.
Prices on special items quoted on request.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in the United States east of Mississippi River. Seller reserves right to select route and method of shipment. If Buyer requests and Seller agrees to a route or method involving higher than lowest rate Buyer shall pay the excess of transportation cost and tax.
* "Estron" and "Chromspun" are trade-marks of the Eastman Kodak Co.

CELLULOSIC STAPLE & TOW RAYON

American Viscose Corp.

Current Prices

Rayon Staple

	Bright and Dull
Regular	$ .31
"Viscose 22"	.31
Extra Strength 1.0 Denier	.34
"Viscose 32A"	.36
"Avisco XL" 1.0 & 1.5 Deniers	.40
"Avisco Crimped" 1.25 Denier	.34
3.0 & 5.5 Deniers	.32
8.0 & 15.0 Deniers	.34
"Avisco Super L" 8.0, 15.0 & 22.0 Deniers	.35
Short Staple Blend	.33

Rayon Tow

Grouped Continuous Filaments (200,000 Total Denier) 1.5, 3.0 & 5.5 Denier Per Filament	.33
9.0 Denier Per Filament	.35
Grouped Continuous Filaments (4400/300 & 2000/1500)	.65

Prices of other descriptions on request.
Terms: Net 30 days.

American Enka Corp.

Current Prices Effective 1/1/58

Rayon Staple

Regular

	Brt.	Dull
1.5 and 3 denier	$ .31	$ .31

Crimped

8 denier	.34	....
15 denier	.34	.34

Celanese Corp. of America

Current Prices
Effective Dec. 3, 1957

Rayon Tow

	Bright & Dull
1.5, 3, 5.5 D.P.F. Total denier 200,000	.33
8 D.P.F. Total denier 207,000	.35

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. East of Mississippi River. Transportation prepaid to any U.S.A. destination West of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.
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All previous prices withdrawn.
Note: Prices on unlisted items can be obtained upon request.
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Courtaulds (Alabama) Inc.

Effective March 7, 1958

Rayon Staple

	Bright	Dull
1½ and 3 denier	$.31	$.31

Available in 1¼", 1-9/16" and 2".

Crimped Rayon Staple

3 and 5½ denier	$.32	$.32
Available in 1-9/16" and 3".		
3 denier		.32
Available in 2".		

"Coloray" Spun Dyed Rayon Staple

	1½ Den. 1-9/16"	3 Den. 2"	Price per Lb.
	(Code numbers for color and denier)		
Black	1404	1419	37¢
Tan	8004	8019	39¢
Medium Brown	8804	8819	39¢
Silver Grey	1004	1019	39¢
Mocha	7704	7719	39¢
Spicenut	7804	7819	39¢
Dark Brown	8604	8619	40¢
Aqua	4704	4719	40¢
Rose	5804	5819	40¢
Dawn Pink	5904	5919	40¢
Ecru	7904	7919	40¢
Slate Grey	0804	0819	43¢
Light Blue	4004	4019	44¢
Sulphur	2004	2019	44¢
Nugget	2304	2319	44¢
Apple Green	5104	5119	45¢
Sage	5304	5319	45¢
Crystal Blue	3904	3919	45¢
Peacock Blue	4604	4619	46¢
Medium Blue	4204	4219	48¢
Dark Blue	4404	4419	49¢
Hunter Green	5404	5419	49¢
Indian Yellow	2504	2519	49¢
Pink	6004	6019	50¢
Turquoise	4804	4819	50¢
Malachite Green	5204	5219	51¢
Red	7004	7019	56¢

(In addition to the above, Black is also available in:
1½ den. 1⅛" (1401) 3 den. 1-9/16" (1416)
3 den. 1⅛" (1413) 5½ den. 3" (1429)

Corval

Man-made, cross-linked, cellulosic staple, Bright and Dull, 1½, 3 and 5½ denier.... $.40 per lb.

Topel

Man-made, cross-linked, cellulosic staple, Bright and Dull, 1½, 3 and 5½ denier ... $.34 per lb.

Terms: Net 30 days f.o.b. LeMoyne, Alabama; Minimum transportation allowed to points in U.S.A. east of Mississippi River.

The Hartford Rayon Co.

Div. Bigelow-Sanford Carpet Co., Inc.

Rayon Staple

Effective November 3, 1958

REGULAR
1.5 denier Bright
1 9/16", 2" ... .31

VISCALON 66 (Crimped)
8 denier 3" Bright ... .34
15 denier 3" Bright ... .34
15 denier 3" Dull ... .34

"KOLORBON"—Solution Dyed Rayon Staple—3" and 6"

	8 Denier Bright	15 Denier Dull	15 Denier Bright
Cloud Grey	45¢	45¢	....
Sandalwood	45¢	45¢	....
Nutria	45¢	45¢	....
Sea Green	45¢	45¢	....
Mint Green	45¢	45¢	....
Champagne	45¢	45¢	....
Midnight Black	43¢	....	45¢
Gold	48¢	48¢	....
Turquoise	45¢	45¢	....
Melon	48¢	48¢	....
Capri Blue	45¢	45¢	....
Charcoal Grey	45¢	45¢	....
Coco	46¢	46¢	....
Sable	47¢	....	47¢
Tangerine	65¢	....	65¢
Chinese Red	65¢	....	65¢
Larkspur Blue	45¢	45¢	....
Royal Blue	65¢	....	65¢
Lemon Peel	54¢	54¢	54¢
Kelly Green	54¢	54¢	54¢
Bitter Green	65¢	....	65¢

Terms: Net 30 days. Prices are quoted f.o.b. shipping point, lowest cost of transportation allowed, or prepaid. To points West of the Mississippi, lowest cost of transportation allowed to the Mississippi River crossing.

North American Rayon Corporation

Current Prices

Rayon Staple

Super High Tenacity	Bright
No. 1 (Unshrunk) 1, 1.5 & 3 deniers	.40
No. 2 (Preshrunk) 1, 1.5 & 3 deniers	.40

Rayon Tow

Super High Tenacity	
2200 denier, 1.0 and 1.5 D/F	57.5
4400 denier, 1.0 and 1.5 D/F	47.5

ACETATE

Celanese Corp. of America

Current Prices
Effective March 17, 1958
(Most Deniers Available in Bright or Dull Luster)

Staple

Celanese Acetate Staple 2, 3, 5.5, 8, 12 & 17 Denier (Regular Crimp, Type HC, Type D)	$.36
35 Denier	.38
50 Denier	.40
Type F—5.5, 8, 12, 17 Denier	.35
Type K—(Available under Celanese License Agreement)	.39
⅝" to ⅞" length (All Deniers)	.03 (Premium)
35 Denier Flat Filament Acetate	.40
Non-Textile Acetate Fibers	.28*

Tow (Celatow)

2, 3, 5.5, 8, 12 & 17 Denier	$.37
35 Denier	.40
50 Denier	.42

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.
Prices subject to change without notice.
All previous prices withdrawn.
* No transportation allowed (F.O.B. shipping point.)
Note: Prices on unlisted items can be obtained upon request.

New Machinery

(Continued from Page 76)

ing, stopping and jogging by an inexperienced operator so that such an operator can manipulate the loom without difficulty.

Current intense interest throughout the textile industry in equipment for texturizing continuous filament and spun yarns drew many observers to the booth of U. S. Textile Machinery Co., Scranton, Pa. There in operation was the company's Jumbo Texturizer. The machine texturizes yarns by the Taslan air jet method, handling synthetic or natural fiber yarns from cakes, cones, pirns and spools winding them on new 10" traverse 10" diameter packages.

With the Jumbo Texturizer, multiple ends of yarn can be texturized to achieve unique fabric effects using producers' yarn packages. The machine is especially designed to handle heavy denier yarns—up to 8,000 deniers—and has application for yarns intended for carpet and industrial end uses as well as lighter yarns for apparel uses. The machine imparts Taslan texturization to such yarns as nylon, Dacron, Orlon, rayon, acetate and glass, including both filament and spun yarns either individually or in combinations.

At the show, Cocker Machine & Foundry Co., Gastonia, N. C., displayed its latest developments in high speed slashing and warping equipment along with cooking and storage kettles and creels. Outstanding in the Cocker floor area was the company's new slasher torque tube drive. Among the advantages of this gear head drive cited by Cocker spokesmen are these: elimination of troublesome belts, chains and sprockets which are replaced with a telescoping patented torque tube drive. The new drive features two universal joints which transmit positive power to a gear reducer which drives the beam driving head direct.

The new design of the drive mechanism permits use of a basic 5 HP-DC motor of simple design and eliminates the present conventional gear boxes, thus reducing initial cost materially. The new drive can safely run beams varying as much as 50 inches in width without protruding spindles and with no sprockets or chains to slide in and out. Another advantage of the new gear head drive is its virtual elimination of noise. ■

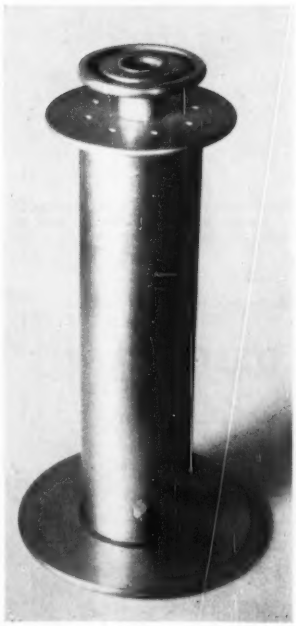
COLOR RICHES
top colorfastness...color beauty...
color uniformity...color versatility
UNLIMITED for fabric, apparel,
home furnishings, everything

COURTAULDS'
COLORAY®

solution-dyed rayon fiber CAPTIVE COLOR ..."CAN'T ESCAPE!"

COURTAULDS (Alabama) Inc., 600 Fifth Ave., N. Y. 20

N E W

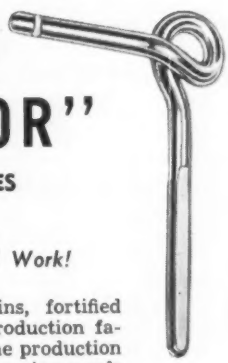


LOW COST ALUMINUM TWISTER BOBBIN

New aluminum twister bobbin of high strength will not warp or fail despite repeated steamings of highest strength nylon yarns. Of two pound capacity, this new bobbin is dynamically balanced and anodized against corrosion yet is less costly than ordinary bobbins. Spindle guide tube goes all the way through. Grip knob with identification ring simplifies handling without need to touch yarn. Available in a variety of sizes. Write for details today.

BW MACK **ALLENTOWN BOBBIN WORKS, INC.**
ALLENTOWN PENNSYLVANIA

Specify
COLLINS "IRRIDIOR" THREAD GUIDES



the finest in Hard Chromium Plated Work!

For over 35 years—Collins, fortified with the technique and production facilities, has pioneered in the production of wire work to suit the growing needs of the textile industry.

And today, Collins "Irridior" Thread Guides are "tops" in the processing of Nylon and Rayon threads—because "Irridior" means harder, denser chrome-plating designed to last longer.

"For those who prefer Matte or Sandblast finish, try our Irridior Matte Finish F75."

COLLINS SUPPLY & EQUIPMENT CO.
1357-97 Monsey Ave. Scranton 2, Pa.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

Celanese Corp. of America

Current Prices

Effective March 17, 1958

(Most Deniers Available in Bright or Dull Luster)

Arnel Triacetate Staple and Tow

Arnel Triacetate Staple	Bright & Dull
2.5 Individual Denier	$.55
5.0 Individual Denier	.55
Arnel Triacetate Tow	
2.5 Individual Denier 114,000 Total Denier	$.60
5.0 Individual Denier 90,000 Total Denier or 180,000 Total Denier	.60

Packaged on Ball Warps

Terms: Net 30 days. Transportation prepaid or allowed to any destination in U.S.A. east of Mississippi River. Transportation prepaid to any U.S.A. destination west of Mississippi River, but charge is made for the portion of transportation from river crossing nearest customer's location.

Prices subject to change without notice.

All previous prices withdrawn.

Note: Prices on unlisted items can be obtained upon request.

Orders are subject to conditions of sale appearing on our acknowledgments of orders.

NON CELLULOSIC YARN

NYLON

Allied Chemical Corporation

Caprolan®†

Effective May 20, 1958

Denier	Filament	Turn/In.	Twist	Type**	Package	1st Grade Price/Lb.
200	16	1½	Z	B	Cone	$1.49
560	32	1	Z	HB	Aluminum Tube	$1.39
840	136	½	Z	HBT	Aluminum Tube	1.20
840	136	½	Z	HBT	Beams	1.20
Heavy Yarn						
2100	408	0	O	HB	Paper Tube*	$1.18
2100	112	0	O	HB	Paper Tube*	1.20
2500	408	0	O	HB	Paper Tube*	1.18
3360	544	0	O	HB	Paper Tube*	1.17
4200	680	0	O	HB	Paper Tube*	1.17
4200	224	0	O	HB	Paper Tube*	1.19
5000	816	0	O	HB	Paper Tube*	1.17
5600	280	0	O	HB	Paper Tube*	1.19
5800	952	0	O	HB	Paper Tube*	1.17
7500	1224	0	O	HB	Paper Tube*	1.16
10000	1632	0	O	HB	Paper Tube*	1.16
15000	2448	0	O	HB	Paper Tube*	1.16

Terms—Net 30 days.

Prices subject to change without notice.

All prices quoted F.O.B. Shipping Point.

Following are invoiced as a separate item.

Bobbins—45 cents each.

Aluminum Tubes—40 cents each.

Beams—$220.00 each.

Cradles for Beams—$53.00.

B—Bright.

H—High Tenacity.

T—Heat Stabilized.

* Paper Tubes non-returnable, no charge.

** Type is used to describe luster and tenacity

Lowest freight cost prepaid or allowed east of Mississippi River, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

† Allied Chemical's polyamide fiber.

American Enka Corporation

Enka Nylon Yarn Prices

Effective August 19, 1958

Den/Fil	Twist	Luster	Type	Tenacity	Pkg.	Net Wt. Pkg.	Price/Pound Std.	Sub.
15 monofil	0.5Z	Semi-dull	9504	Normal	Pirn	1 lb.	$5.25	$5.00
15 monofil	0.5Z	Semi-dull	9506	Normal	Pirn	2 lb.	5.25	5.00
15 monofil	0.5Z	Semi-dull	9508	Normal	Beam	....	5.36	....
15 monofil	0.5Z	Dull	9512	Normal	Pirn	1 lb.	5.30	5.05
15 monofil	0.5Z	Dull	9514	Normal	Pirn	2 lb.	5.30	5.05
15 monofil	0.5Z	Dull	9516	Normal	Beam	....	5.41	....
15/2	0.5Z	Semi-dull	9518	Normal	Pirn	1 lb.	7.37	6.70
18/2	0.5Z	Semi-dull	....	Normal	Pirn	....	6.65	6.10
20 monofil	0.5Z	Semi-dull	9524	Normal	Pirn	1 lb.	4.95	4.50
20/2	0.5Z	Semi-dull	9478	Normal	Pirn	1 lb.	5.55	5.05
30/4	0.5Z	Semi-dull	....	Normal	Pirn	....	2.62	2.42
30/6	0.5Z	Semi-dull	9466	Normal	Pirn	2 lb.	2.36	2.21
30/6	0.5Z	Semi-dull	9464	Normal	Pirn	2 lb.	2.36	2.21
40/8	0.5Z	Semi-dull	9448	Normal	Pirn	2 lb.	2.01	1.91
40/8	0.5Z	Semi-dull	9452	Normal	Pirn	2 lb.	2.01	1.91
40/8	0.5Z	Semi-dull	9456	Normal	Beam	....	2.11	....
40/10	0.5Z	Dull	9502	Normal	Pirn	2 lb.	2.06	1.96
40/10	0.5Z	Dull	9526	Normal	Beam	....	2.16	....
50/13	0.5Z	Semi-dull	9442	Normal	Pirn	2 lb.	1.91	1.76
70/32	0.5Z	Semi-dull	9622	Normal	Pirn	2 lb.	1.71	1.66
100/32	0.5Z	Semi-dull	9652	Normal	Pirn	2 lb.	1.65	1.60
200/16	0.6Z	Bright	9826	Normal	Cone	4 lb.	1.49	1.44
200/16	0.5Z	Bright	9828	Normal	Beam	....	1.54	....
200/34	0.6Z	Bright	9832	Normal	Cone	4 lb.	1.49	1.44
200/34	0.5Z	Bright	9824	Normal	Beam	....	1.54	....

Pirns charged at $.25 or $.45 each, depending on type. Deposit refunded upon return of pirn in good condition. Cones are non-returnable. Beams and cradles are deposit carriers and remain property of American Enka Corporation.

Terms: Net 30 days. Minimum common carrier transportation charges will be pre-paid and absorbed to the first destination on or east of the Mississippi River. In pre-paying transportation charges, seller reserves the right to select the carrier used.

The Chemstrand Corp.

Current Prices

Effective June 2, 1958

Denier	Filament	Twist	Type*	Package	Standard Price/Lb.	Second Price/Lb.
10	1	O	SD	Bobbins	$8.42	$7.81
15	1	O	SD	Bobbins	5.25	5.00
15	1	O	SD	Spools	5.36	....
15	1	O	D	Bobbins	5.30	5.00
15	1	O	D	Spools	5.41	....
20	7	Z	D	Bobbins	2.96	2.61
30	10	Z	SD	Bobbins	2.36	2.21
30	10	Z	D	Bobbins	2.41	2.21
30	10	Z	HSD	Bobbins	2.36	2.21
30	26	Z	SD	Bobbins	2.49	2.21
40	7	Z	SD	Bobbins	2.11	1.81
40	10	Z	SD	Bobbins	2.01	1.91
40	13	Z	SD	Bobbins	2.01	1.91
40	13	O	SD	Draw Wind	2.01	1.91
40	13	Z	SD	Spools	2.11	....
40	13	Z	D	Bobbins	2.06	1.96
40	13	Z	D	Spools	2.16	....
50	17	Z	SD	Bobbins	1.91	1.76
50	17	Z	SD	Draw Wind	1.91	1.76
70	34	Z	SD	Bobbins	1.71	1.66
70	34	O	SD	Draw Wind	1.71	1.66
70	34	Z	SD	Spools	1.81	....
70	34	Z	B	Bobbins	1.71	1.66
70	34	O	B	Draw Wind	1.71	1.66
70	34	Z	D	Bobbins	1.76	1.66
70	34	Z	D	Spools	1.86	....
70	34	Z	HB	Bobbins	1.76	1.66
80	26	Z	SD	Bobbins	1.71	1.60
100	34	Z	SD	Bobbins	1.65	1.60
100	34	Z	SD	Spools	1.75	....
100	34	Z	HB	Bobbins	1.70	1.60
140	68	Z	SD	Bobbins	1.60	1.55
140	68	Z	SD	Spools	1.70	....
140	68	Z	B	Bobbins	1.60	1.55
200	34	Z	B	Bobbins	1.49	1.44
200	34	O	B	Draw Wind	1.49	1.44
210	34	Z	HB	Bobbins	1.49	1.44
210	34	O	HB	Draw Wind	1.49	1.44
210	34	Z	HB	Spools	1.54	....
210	34	Z	HB	Beams	1.54	....
210	34	Z	RHB	Bobbins	1.59	1.54
260	17	Z	HB	Bobbins	1.49	1.39
260	17	Z	HB	Spools	1.54	....
420	68	Z	HB	Bobbins	1.39	1.29
520	34	Z	HB	Bobbins	1.39	1.29
630	102	Z	HB	Bobbins	1.39	1.29
780	51	Z	HB	Bobbins	1.39	1.29
840	140	Z	HB	Beams	1.20	1.10
840	140	Z	HB	Tubes	1.20	1.15
840	140	O	HB	Draw Wind	1.20	1.13
840	140	Z	RHB	Beams	1.20	1.13
840	140	Z	RHB	Tubes	1.20	1.13
1040	68	Z	SD	Tubes	1.24	1.14
1040	68	Z	HB	Tubes	1.24	1.14
1680	280	Z	HB	Tubes	1.20	....
2080	136	Z	SD	Tubes	1.20	....
15120	2520	Z	RHB	Tubes	1.16	....

* *Types*: D—Dull; SD—Semi-dull; B—Bright; H—High tenacity.

Bobbins are invoiced at 25¢ or 45¢ each, depending on type; tubes are invoiced at 40¢ each; spools invoiced at $77.00 and $95.00 depending on type; and beams and crates for beams are invoiced at $220 and $25 respectively.

Prices subject to change without notice.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.

Current Prices

Nylon Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
7-1	0	200	Bobbin	$9.47	$8.82
10-1	0	200	Bobbin	8.42	7.82
12-1	0	200	Bobbin	7.35	6.85
15-1	0	200	Beam	5.36	....
15-1	0	200	Bobbin	5.25	5.00
15-1	0	680	Beam	5.41	....
15-1	0	680	Bobbin	5.30	5.00
20-1	0	200	Bobbin	4.95	4.50
14-2	0.2Z	200	Bobbin	7.80	7.30
17-2	0.2Z	200	Bobbin	7.05	6.50
20-2	0.2Z	200	Bobbin	5.55	5.05
15-3	0.2Z	200	Bobbin	6.10	5.60
21-3	0.2Z	200	Bobbin	5.48	5.05
20-7	0.5Z	200	Bobbin	2.91	2.61
20-7	0.5Z	200	Beam	3.02	....
20-7	0.5Z	680	Bobbin	2.96	2.61
20-7	0.5Z	680	Beam	3.07	....
20-20	0.7Z	209	Bobbin	6.00	....
28-4	0.2Z	200	Bobbin	2.81	2.61
30-10	0.5Z	200	Bobbin	2.36	2.21
30-10	0.5Z	200	Tricot Bms.	2.46	....
30-10	0.5Z	680	Bobbin	2.41	2.21
30-10	0.5Z	680	Tricot Bms.	2.51	....
30-26	0.5Z	200	Bobbin	2.49	2.21
40-1	0	100	Bobbin	4.03	3.75
40-7	0.5Z	200	Bobbin	2.11	1.91
40-10	0.5Z	200	Bobbin	2.01	1.91
40-13	0.5Z	200	Bobbin	2.01	1.91
40-13	0.5Z	200	Tricot Bms.	2.11	....
40-13	0.5Z	400	Bobbin	2.13	1.90
40-13	0.5Z	680	Bobbin	2.06	1.96
40-13	0.5Z	680	Tricot Bms.	2.16	....
40-34	0.5Z	200	Bobbin	2.21	1.81
50-10	0.5Z	200	Bobbins	2.11	1.76
50-17	0.5Z	200	Bobbin	1.91	1.76
50-17	0	200	Tubes	1.91	1.76
50-17	0.5Z	680	Bobbin	2.01	1.76
60-20	0.5Z	200	Bobbin	1.82	1.65
70-17	0.5Z	200	Bobbin	1.71	1.66
70-34	0	100	Tubes	1.71	1.66
70-34	0.5Z	100/200	Bobbin	1.71	1.66
70-34	0	200	Tubes	1.71	1.66
70-34	0.5Z	280	Bobbin	1.71	1.66
70-34	0.5Z	300	Bobbin	1.76	1.66
70-34	0.5Z	680	Bobbin	1.76	1.66
70-34	0	680	Tubes	1.76	1.66

Fabric Streaks

(Continued from Page 74)

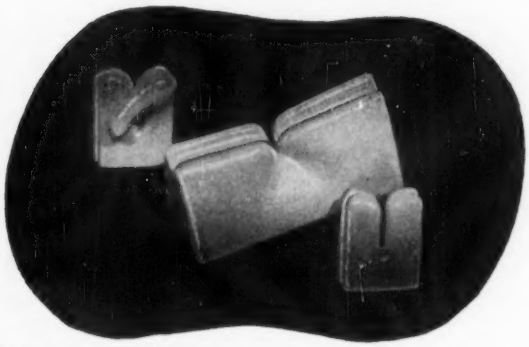
BAKER: Since this is a heating test, and you go up to 120 degrees C. on the plate, is there not a possibility of removing some streaks from thermoplastic fabrics?

SCHULZE: Normally when you are using polystyrene which softens at 105 to 110 degrees, there is very little risk of removing the streaks, and the pressure that is used to force the fabric or push the fabric into the plastic is about 20 to 30 pounds per square inch, which is actually a very low pressure on a small area of the weave, so that there is very little hazard of eliminating any of these streaks. You have got to go to much higher pressure in order to press out these physical streaks.

QUESTION: Can you tell us more about the source of the pirn taper barré. What is its origin?

SCHULZE: It is usually associated with nylon yarns where it is perceived most frequently. It is associated with the shoulder end of the yarn on the pirn; in other words, the end of the stroke, the end of the traverse stroke on the pirn. Now, as to the exact nature of it, I am not prepared to say what it is. We know it is physical because it replicates. We have made replicas of it. As a matter of fact, I have some samples here which I will be glad to show you. We all know that there is a dye non-uniformity here because these diagnostic tests will reveal that. It is a combination of dyeing irregularity, dyeing non-uniformity and so forth and of structural or geometric irregularity. ■

The past cannot be changed—
the future is still in our hands!



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While your long-range plans are developing, have a dividend NOW from rings: "Spear" the opportunity that is within immediate reach. Any machinery will produce better with better rings... and the advanced DIAMOND FINISH designs are the Spearhead of ring progress.

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1680 Broadway at 52nd Street, New York 19, N. Y.

80-26	0.5Z	200	Bobbin	1.71	1.56
90-26	0.5Z	200	Bobbin	1.76	1.66
90-44	0.5Z	200	Bobbin	1.86	1.76
100-34	0.5Z	200	Bobbin	1.65	1.60
100-34	0.5Z	300	Bobbin	1.70	1.60
100-34	0	300	Tubes	1.70	1.60
100-34	0.5Z	680	Bobbin	1.70	1.60
100-50	0.5Z	200	Bobbin	1.71	1.60
140-68	0.5Z	100	Bobbins	1.60	1.55
140-68	0	200	Tubes	1.60	1.55
140-68	0.5Z	200	Bobbin	1.60	1.55
140-68	0.5Z	300	Bobbin	1.65	1.55
200-20	1Z	100	Bobbin	1.49	1.44
200-34	0	100	Tubes	1.49	1.44
200-34	0.7Z	100	Bobbin	1.49	1.44
200-34	0.7Z	680	Bobbin	1.54	1.44
200-68	0.7Z	200	Bobbin	1.56	1.46
210-34	0	300	Tubes	1.49	1.44
210-34	0.7Z	300	Bobbin	1.49	1.44
210-34	0.7Z	300	Beam	1.54	....
210-34	0.7Z	330	Bobbin	1.59	1.44
260-17	1Z	300	Bobbin	1.49	1.39
400-68	0.7Z	100	Bobbin	1.39	1.29
420-68	1Z	300	Bobbin	1.39	1.29
520-34	1Z	300	Bobbin	1.39	1.29
780-51	1Z	300	Bobbin	1.39	1.29
800-140	0.5Z	100	Bobbin	1.39	1.29
840-140	0.5Z	300/700	Al. Tbs	1.20	1.13
840-140	0.5Z	300/700	Beam	1.20	....
1680-280	0.5Z	300/700	Al. Tbs	1.20	1.13
1680-280	0.5Z	300/700	Beam	1.20	....

Color-Sealed Yarn

Denier & Filament	Turns/Inch & Twist	Type	Package	1st Grade	2nd Grade
30-10	0.5Z	140	Bobbin	$2.71	$2.56
40-13	0.5Z	140	Bobbin	2.36	2.16
70-34	0.5Z	140	Bobbin	2.06	2.01
100-34	0.5Z	140	Bobbin	2.00	1.95
100-34	0	140	Tubes	2.00	1.95
200-34	0.7Z	140	Bobbin	1.84	1.79
260-17	1Z	140	Bobbin	1.84	1.79

Industrial Yarn				Price/Lb.
2520-420	0	300/700	Paper Tube	$1.18
4200-700	0	300/700	Paper Tube	1.17
5040-840	0	300/700	Paper Tube	1.17
7560-1260	0	300/700	Paper Tube	1.16
10080-1680	0	300/700	Paper Tube	1.16
15120-2520	0	300/700	Paper Tube	1.16

These prices are subject to change without notice. Terms: Net 30 Days.

Types

Type 100—Bright, normal tenacity.
Type 140—Bright, color-sealed, black, normal tenacity.
Type 200—Semidull, normal tenacity.
Type 209—Semidull, normal tenacity, improved light durability and dye light fastness.
Type 300—Bright, high tenacity.
Type 330—Bright, high tenacity, more heat & light resistant.
Type 400—Semidull, high tenacity.
Type 680—Dull, normal tenacity.
Type 700—Bright, high tenacity.

Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Following are invoiced as a separate item.
Bobbins—25 cents or 45 cents depending on type
Aluminum Tube—40¢ each
Draw Winder Tubes—$.70 or $1.00 depending on type
Tire Cord Beams—$220.00 each
Cradles for Tire Cord Beams—$115.00 each
Tricot Beams—$95.00 each
Cradles for Tricot Beams—$130.00 each
(Beams and Cradles are deposit carriers and remain the property of E. I. du Pont de Nemours & Co., Inc.)

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

"Dacron"*

Denier & Filament	Turns/Inch	Luster	Type*	Tubes 1st Gr.
30-14	0	Bright	55	$2.81
30-20	0	Semidull	56	2.81
40-27	0	Semidull	56	2.41
40-27	0	Bright	55	2.41
40-27	0	Dull	57	2.46
70-34	0	Semidull	56	2.01
70-14	0	Bright	55	2.01
70-34	0	Bright	55	2.01
70-34	0	Dull	57	2.06
100-34	0	Semidull	56	1.94
140-27	0	Bright	55	1.89
150-34	0	Semidull	56	1.91
220-50	0	Bright	51	1.84
250-50	0	Bright	55	1.86
1100-250	0	Semidull	59	1.50
1100-250	0	Bright	51	1.50
1100-250	0	Bright	52	1.50

Terms: Net 30 Days.

Domestic Freight Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Yarn Types

* Type:
Type 51—Bright, high tenacity.
Type 52—Bright, high tenacity.
Type 55—Bright, normal tenacity.
Type 56—Semidull, normal tenacity.
Type 57—Dull, normal tenacity.
Type 59—Semidull, high tenacity.

Tubes are invoiced as a separate item at $.70 each.

* "DACRON" is DuPont's registered trade-mark for its polyester fiber.

Eastman Chemical Products, Inc.

Tennessee Eastman Co.
Effective September 15, 1958

"Kodel"*

1½ denier	$1.60
3 and 4½ denier	1.50

Terms: Net 30 days.

SARAN FIBERS

The Saran Yarns Company — Odenton, Maryland

The Hall Company (Selling Agent)
41 East 42 Street, New York 17, N. Y. (Oxford 7-8996)

Current Prices:

CONTINUOUS FILAMENT

Type	Twist p. i.	Natural	Colors
1240/10	3	$1.32	$1.37
750/20*	3	1.75	1.80

* For filter fabrics and other industrial purposes only.
F.O.B. Odenton, Maryland.
Terms: Net 30 days.

NON CELLULOSIC STAPLE & TOW ACRYLIC

The Chemstrand Corp.

Current Prices

"Acrilan"*

Effective October 1, 1957

	Regular Acrilan	Acrilan 16
2.0 denier Semi-Dul and Bright staple & tow	$1.24	$1.24
2.5 denier Hi-Bulk Bright and Semi-dull staple and tow	1.16	1.16
3.0 denier Bright & Semi-dull staple & tow	1.16	1.16
5.0 denier Bright & Semi-dull staple & tow	1.16	1.16
8.0 denier Bright & Semi-dull staple	1.16	1.16
15.0 denier Bright & Semi-dull staple	1.01	1.05

Terms: Net 30 days. Freight prepaid to points east of the Mississippi River.

* "Acrilan" is Chemstrand's registered trademark for its acrylic fiber.

The Dow Chemical Company

Textile Fibers Department
Current Prices

"Zefran"*

2.0 denier Semidull & Bright—Staple only	$1.33
3.0 denier Semidull & Bright—Staple only	1.28
6.0 denier Semidull & Bright—Staple only	1.20

Terms: Net 30 days.

Transportation Terms: F.O.B. shipping point—Freight prepaid our route to points east of the Mississippi River within the continental limits of the U. S., for points west of the Mississippi River crossing nearest purchaser's mill if shipped overland or port of exit of purchaser's choice east of the Mississippi River.

* "Zefran" is Dow's registered trademark for its acrylic alloy fiber.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

"Orlon"** Acrylic Staple & Tow

Type 42	1st Grade
1.0 Denier Semidull & Bright—Staple only	$1.48
2.0 Denier Semidull & Bright	1.33
3.0 Denier Semidull & Bright	1.28
3.0 Denier Semidull Color-sealed Black	1.63
6.0 Denier Semidull & Bright	1.20
6.0 Denier Color-sealed Black	1.55
4.5 Denier Semidull	1.20
10.0 Denier Semidull	1.20

Tow—Total Denier 470,000
Staple Lengths—1½", 2", 2½", 3", 4½"
High Shrinkage Staple same price as Regular Staple

Type 39 $.94
This product is designed for *woolen system spinning* and is a blend of deniers (average 4.2) with a variable cut length.

Type 39A $.99
This product is designed for *woolen system spinning* and is a blend of predominately fine deniers (average 2.4) with a variable cut length.

Type 39B $.94
This product is designed for *woolen system spinning* and is a blend of predominately heavy deniers (average 6.5) with a variable cut length.

F.O.B. Shipping Point—Freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Terms: Net 30 Days.

** "ORLON" is DuPont's registered trade-mark for its acrylic fiber.

Eastman Chemical Products, Inc.
Tennessee Eastman Co.

Effective November 3, 1958

"Verel"*

Deniers	Dull and Bright
2 and 3	$1.02 per pound
5, 8, 12, 16, and 20	.92
24 denier	.97

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MALORA® METALLIC YARNS
supported and unsupported

THROWN YARNS

HELANCA® STRETCH YARNS
NYLON • DACRON
Exclusive selling agents for Synthetic Yarns Inc.
and Synfoam Yarns Inc., Lowell, Mass.

Malina COMPANY

125 WEST 41st STREET, NEW YORK 36, LOngacre 3-4200

New Tricot Machines

(Continued from Page 48)

lapping motion provides one with 30% less swing than found on older types of tricot machines. This guide motion substantially reduces guide wear. The first Reading machine installed at Milco shows no appreciable guide wear after 22 months of operation.

On the new machine control of fabric patterns is achieved by use of 18-inch diameter pattern wheels driven by precision change gears. An adjustable mounting holds the follower rollers, allowing full width bearing. Guide bars are returned with a minimum of surging by action of short compression springs. Nine ratios are available ranging from 1 to 6 and 1 to 96.

Specifications of the new Reading tricot machine as furnished by the manufacturer, are as follows:

Knitting Width	168"
Gauge	28 and finer
Recommended Mill Speed	800 C.P.M.
Motor . . . dynamic brake-type motor with Reeves variable speed pulley	
Guide Bars	2 bar-convertible to 3-bar operation
Warp Beam Barrels	4-½" Dia.
Accommodates warps up to 32" in diameter	

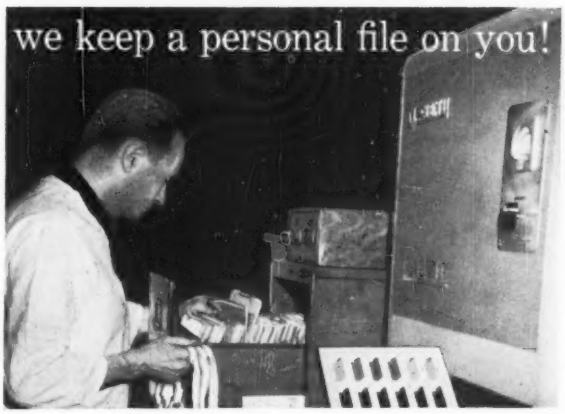
Over-all Dimensions.

Length	19'8"
Width	5'5" (with warp)
Height	5'8" (with warp)
Weight	approx. 15,500 lbs.
Cloth roller diameter	14" max.

Milco with 500 employees is one of the largest makers of women's underwear in the country. Its output includes panties, slips, half slips, and gowns for the medium price market. Established in 1921 in New York City by its president Marco Mitrani and his brother, the late Solomon Mitrani, the firm moved to Bloomsburg in 1931. Originally a cutting and sewing operation, Milco began to knit its own cloth in 1946 with the installation of four Warner & Swasey Aveco tricot machines. Since that time the knitting department has been gradually enlarged until today it encompasses 36 machines of which 12 are the new Reading 800 machines. The remaining complement consists of two Kidde Aveco machines and 22 Warner & Swasey Aveco units.

In the course of its growth, Milco has found it profitable to integrate its operations to a degree that is remarkable in the underwear industry. Today the company not only knits all the cloth it consumes in its underwear manufacturing operations; it also has a large dyeing and finishing department equipped with modern pressure dyeing machines made by Burlington Engineering Co., and a big Reiner-Famatex tenter frame.

In addition, it maintains a big braiding department equipped with 354 Textile Machine Works' braiding machines for making waist and leg elastic tapes for Milco's underwear production. A throwing department uses Universal Winding Co.'s Unirail Uptwisters to process sewing thread for use in the company's sewing departments—another instance of the high degree of integration practiced by Milco. ■



At ATLANTIC your color is "formularized"
to give you the exact same color anytime!

YARN DYEING
Rayon • Nylon • Acetate • Stretch Yarns
Cakes • Packages • Skeins

Custom-matched colors. Large dye batches.
Any degree of color fastness. Packaged as desired.
PROMPT DELIVERY

Atlantic
Rayon Corporation

125 WEST 41st ST., NEW YORK 36, LONGACRE 3-4200
PLANT: 86 CRARY ST., PROVIDENCE, R. I.

Prices are subject to change without notice.
Terms: Net 30 days. Payment—U. S. A. dollars.
Transportation charges prepaid or allowed to destination in the United States east of the Mississippi River. Seller reserves the right to select route and method of shipment. If buyer requests and seller agrees to a route or method involving higher than lowest rate buyer shall pay the excess of transportation cost and tax.
* "Verel" is a trade-mark of the Eastman Kodak Co.

Union Carbide Chemicals Co.

Div. Union Carbide Corp.
Textile Fibers Dept.
Effective October 1, 1957

Dynel Staple & Tow

Natural Dynel	
3, 6, and 12 Denier, Staple and Tow	1.10 per lb.
24 Denier, Staple and Tow	1.05 per lb.
Dynel Spun with Light Colors:	
Whitened, Blond, or Gray	
3 and 6 Denier, Staple and Tow	1.30 per lb.
Dynel Spun with Dark Colors:	
Black, Charcoal, and Brown	
3 and 6 Denier, Staple and Tow	1.40 per lb.
Dynel Type 63 Bulking Fiber (3 Denier only)	Add $.05 per lb. to above prices

Prices are quoted f.o.b. South Charleston, W. Va.

NYLON

American Enka Corp.

Effective August 19, 1958

Enka Nylon (Nylon Six Staple)

Denier	Luster	Length (Inches)	Price per pound
3	semi-dull	1½, 1½, 2, 2½, 3, 4½	$1.28
6	bright	3, 4½	1.28
8	bright	2½	1.15
10	bright	3	1.08
15	bright	3	1.08
15	semi-dull	3	1.08

Deniers and lengths of staple not listed above are available upon special request.
Terms: Net 30 days. Minimum common carrier transportation charges will be prepaid and absorbed to the first destination on or east of the Mississippi River. In prepaying transportation charges, seller reserves the right to select the carrier used.

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

Nylon Staple and Tow

Denier	Type	Staple Lengths	Tow Bundle	1st. Grade Price/Lb.	2nd Grade Staple Only
1.5	200	1½"—4½"	None made	$1.33	$1.18
1.5	201	1½"—4½"	None made	1.35	1.20
3.0	100/200	1½"—4½"	430M	1.28	1.13
3.0	101/201	1½"—4½"	455M	1.30	1.15
6.0	100	1½"—4½"	330M	1.28	1.13
6.0	101	1½"—4½"	345M	1.30	1.15
15.0	100	1½"—6½"	425M	1.08	....
15.0	101	1½"—6½"	None made	1.10	....
15.0	600	1½"—6½"	425M	1.10	....
15.0	601	1½"—6½"	None made	1.12	....

Staple lengths are restricted to the range shown opposite each denier above. The actual cut lengths within these ranges are as follows:

1½, 1½, 2, 2½, 3, 4½ and 6½

Types

Type 100 Bright, normal tenacity, not heatset.
Type 101 Bright, normal tenacity, heatset.
Type 200 Semidull, normal tenacity, not heatset.
Type 201 Semidull, normal tenacity, heatset
Type 600 Dull normal tenacity, not heatset.
Type 601 Dull normal tenacity, heatset.
These prices are subject to changes without notice.
Terms—Net 30 Days.
Freight Terms—Terms are F.O.B. shipping point, freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

Industrial Rayon Corp.

Effective August 18, 1958

Nylon Staple

1.5 denier	$1.33 per lb.
2, 3 and 6 denier	1.28 per lb.
8 denier	1.15 per lb.
15 and 22 denier	1.08 per lb.

Bright, semi-dull, and full-dull. Required lengths.
Terms: Net 30 days f.o.b. point of shipment; title to pass to buyer on delivery of goods to carrier. Domestic transportation charges prepaid with transportation allowed at lowest published rate to all points east of the Mississippi River.

POLYESTER

E. I. du Pont de Nemours & Co.

Textile Fibers Dept.
Current Prices

"Dacron"* Staple and Tow

Denier	Luster	Type	Length	Tow Bundle	1st Gr.
1.25	Semidull	54	1¼"-3"		$1.56
1.5	Semidull	64	1¼"-3" & Tow	375M-600M	1.56
1.5	Semidull	54	1¼"-3" & Tow	375M-600M	1.51
3.0	Semidull	64	1¼"-4½" & Tow	375M-500M	1.46
3.0	Semidull	54	1¼"-4½" & Tow	375M-500M	1.41
4.5	Semidull	64	1¼"-4½" & Tow	375M-500M	1.46
4.5	Semidull	54	1¼"-4½" & Tow	375M-500M	1.41
6.0	Semidull	64	1¼"-4½" & Tow	375M-500M	1.46
6.0	Semidull	54	1¼"-4½" & Tow	375M-500M	1.41

* Type:
Type 54—Semi Dull, Normal Tenacity.
Type 64—Pill Resistant more Dyeable Staple for Worsted & Rayon Blends.
Terms: Net 30 Days.
F. O. B. Shipping Point—Freight prepaid our route to points east of the Mississippi River within the continental limits of the United States, for points west of the Mississippi River freight allowed to the Mississippi River crossing nearest purchaser's mill if shipped overland, or port of exit of purchaser's choice east of Mississippi River.

POLYVINYL ACETATE

American Viscose Corp. Effective October 1, 1956

"Vinyon"® Staple

3.0 denier	⅛" unopened	$.80 per lb.
3.0 "	1¼" unopened	.80 per lb.
3.0 "	1¼" opened	.90 per lb.
3.0 "	2" opened	.90 per lb.
3.0 "	2" unopened	.80 per lb.
5.5 "	1" opened	.90 per lb.
5.5 "	3½" opened	.90 per lb.
5.5 "	3½" unopened	.80 per lb.

Terms: Net 30 days.

SARAN FIBERS

The Saran Yarns Company — Odenton, Maryland

The Hall Company (Selling Agent)
41 East 42 Street, New York 17, N. Y. (Oxford 7-8996)
Current Prices:

Saran Staple

Type	Denier	Natural	Colors
2N	22	$0.70	$0.75
2N	16	.74	.79
3Q*	22	.63	.67

In any staple length 1½ to 6". Also 45 denier, 7" cut.
* For carpets and industrial fabrics.
F.O.B. Odenton, Maryland.
Terms: net 30 days.

METALLICS

Textile Fibers Dep't

The Dow Chemical Co., James River Div.
Williamsburg, Va.
Lurex Yarn Division Current Prices

#150 LUREX-MM* (Made with Metalized Mylar)

Width	1/128"	1/100"	1/64"	1/50"	1/32"
Silver					
Yield in Yds/Lb	42,400	35,300	23,200	16,600	10,500
1 Case to 1,999#	$10.65	$10.25	$7.80	$7.60	$7.35
2,000# to 4,999#	10.10	9.75	7.40	7.20	7.00
5,000# and over	9.90	9.55	7.25	7.05	6.85
Gold & White Gold					
Yield in Yds/Lb	37,900	30,000	19,200	15,000	9,400
1 Case to 1,999#	$10.90	$10.50	$8.00	$7.75	$7.60
2,000# to 4,999#	10.35	10.00	7.60	7.35	7.20
5,000# and over	10.15	9.75	7.45	7.20	7.05
Standard Colors					
Yield in Yds/Lb	37,500	29,500	19,100	15,400	9,300
1 Case to 1,999#	on	on	$9.00	on	$8.70
2,000# to 4,999#	Re-	Re-	8.55	Re-	8.25
5,000# and over	quest	quest	8.35	quest	8.10

#150 LUREX MF* (Mylar—Foil—Mylar)

Width	1/100"	1/64"	1/50"	1/32"
Silver				
Yield in Yds/Lb	26,000	18,700	13,900	9,300
1 Case to 1,999#	$7.80	$5.45	$5.25	$5.15
2,000# to 4,999#	7.40	5.15	5.00	4.90
5,000# and over	7.25	5.05	4.90	4.80
Gold, White Gold & Copper				
Yield in Yds/Lb	24,000	17,250	12,700	8,400
1 Case to 1,999#	$8.00	$5.60	$5.40	$5.30
2,000# to 4,999#	7.60	5.30	5.15	5.05
5,000# and over	7.45	5.20	5.00	4.90
Standard Colors				
Yield in Yds/Lb	25,000	17,500	13,000	8,700
1 Case to 1,999#	$8.75	$6.30	$6.15	$6.00
2,000# to 4,999#	8.30	6.00	5.85	5.70
5,000# and over	8.10	5.85	5.70	5.60

#260 LUREX* (Regular Butyrate)

Width	1/100"	1/80"	1/64"	1/50"	1/32"	1/16"
Gold, Silver & Copper						
Yield in Yds/Lb	16,400	13,000	10,500	8,200	5,200	2,600
1 Case to 1,999#	$4.50	$4.00	$3.35	$3.25	$3.00	$2.85
2,000# to 4,999#	4.30	3.80	3.20	3.10	2.85	2.70
5,000# and over	4.20	3.70	3.10	3.00	2.80	2.65
Standard Colors						
Yield in Yds/Lb	—	—	10,500	8,200	5,200	—
1 Case to 1,999#	—	—	$3.45	$3.35	$3.10	—
2,000# to 4,999#	—	—	3.30	3.20	3.00	—
5,000# and over	—	—	3.20	3.10	2.90	—
Multicolors						
Yield in Yds/Lb	—	13,000	10,500	—	5,200	—
1 Case to 1,999#	—	$4.30	$3.65	—	$3.30	—
2,000# to 4,999#	—	4.10	3.45	—	3.15	—
5,000# and over	—	4.00	3.40	—	3.10	—

A. LUREX*, LUREX-MM* and LUREX MF* are the registered trademarks of The Dobeckmun Company, A Division of The Dow Chemical Company. Multicolor is Patent Pending. Mylar is DuPont's polyester film.

New Nylon Staple for Carpets

A nylon staple fiber that can be used on the wool, cotton or worsted spinning systems was announced last month by the nylon division of Industrial Rayon Corp. Production of this fiber, which is designed specifically for floor coverings, follows an intensive evaluation program carried out under actual manufacturing conditions in several commercial plants, according to Charles E. Rodgers, Jr., sales manager of the company's nylon division.

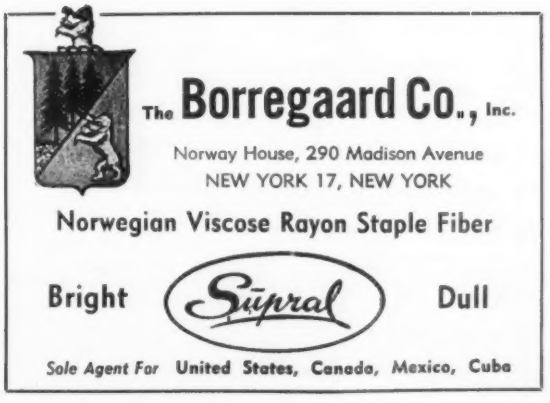
All of the tests clearly indicate that this one fiber can be used with equally good results on any of the three major spinning systems, Rogers said. It also is being manufactured in long lengths for the jute spinning system. The fiber is regarded as particularly advantageous to those carpet manufacturers who utilize more than one type of spinning system. In addition to its added flexibility in use, the fiber has greater bulk and excellent processing efficiency, according to Rogers.

The nylon fiber is crimped and set in such a manner as to allow for twist-setting if desired. It is being produced in bright and dull lusters in both 15 and 22 denier for the carpet industry. The selling price remains unchanged at $1.08 a pound.

Wool Group Elects

G. Norman Winder, president of the American Sheep Producers Council, has been elected head of Woolens and Worsteds of America, Inc. Named vice presidents were: William I. Kent, Kent Manufacturing Co., and president of the National Association of Wool Manufacturers; Ronald A. Mitchell, Cyril Johnson Woolen Co.; George A. Ott, Richard Ott & Sons, and I. A. Wyner, I. A. Wyner & Co., Inc. Walter Pfluger was elected treasurer; J. M. Jones, assistant treasurer, and Robert S. Taplinger, secretary.

SUPERIOR
Porcelains
• White or Blue Glaze Blue Matte
• "PAMACO" 175-176-200-201 Hard — Long Wearing — High Polish or Matte Finish
• Wires Enameled or Hardchromed
• Glass Rings — Tubes
• Springs Shuttle Tensions
Let us help you solve your particular drag, tension or wear problem. We have over 36 years of Industrial Ceramic manufacturing experience.
• Write today for samples, quotations and catalog.
PAGE-MADDEN COMPANY, INC.
ESTABLISHED 1931
76-96 E. Second St., Mineola, N.Y.
• Pioneer 6-2660
(We operate only under this name and at this address)



B. Standard Colors:

L-941	Scarlet	L-981	Pink Opal
L-984	Turquoise	L-942	Peacock Blue
L-940	Emerald Green	L-983	Violet
L-861	Bronze	L-978	Gunmetal
2A-1	Multicolor	3A-2	Multicolor
4A-5	Multicolor	4A-7	Multicolor
6A-1	Multicolor	6A-2	Multicolor
L-869	Fuchsia	L-982	Blueflower
L-935	Royal Blue	L-980	Apple Green
L-1008	Purple	L-933	Copper
L-850	Jet	L-1007	Green Gold
3A-3	Multicolor	1A-3	Multicolor
4A-14	Multicolor	4A-4	Multicolor
6A-3	Multicolor	3A-4	Multicolor

C. Other colors available on a custom basis only for which a minimum firm order of 150 lbs. is required. Regular color prices will apply. After approval of color swatch, one sample run of 10 lbs. or over can be ordered with an up-charge of $2.00 per lb. over regular color prices.

D. LUREX-MM, LUREX-MF and regular LUREX is supplied on disposable spools having plastic end plugs with 3/8" I.D. holes. Spools contain approx. 1 lb. of yarn.

E. Cases contain 6 LUR-PAKS. Each LUR-PAK contains 6 one pound spools.

F. Yields are subject to variation of plus or minus 5%.

G. TERMS: 1% 10 days from date of invoice, Net 30 days, FOB Cleveland, Ohio. Minimum freight allowed on shipments of 100 pounds and over.

H. Items may be combined for quantity prices.

Fairtex Corporation

1808 Liberty Life Building
Charlotte 2, N. C.
January 23, 1958

1. Fairtex No. 260 (butyrate)—gold, silver and copper.

Width	Yield (Per Pound)	Price (Per Pound)
1/120"	21,000	$4.75
1/80"	13,000	4.00
1/64"	10,800	3.35
1/50"	8,400	3.25
1/32"	5,300	3.00
1/16"	2,600	2.85
1/8"	1,300	2.70

2. Fairtex with Mylar* No. 190V (2 ply), (metallized type)—silver only.

1/100"	48,000	$13.25
1/80"	37,000	11.40
1/64"	31,000	10.40
1/50"	24,200	10.15
1/32"	15,500	9.80

Fairtex with Mylar* No. 150V (3 ply), (metallized type)—gold, silver and copper.

1/100"	32,000	$10.65
1/80"	25,000	9.25
1/64"	21,000	8.35
1/50"	16,400	8.20
1/32"	10,500	8.05

3. Fairtex with Mylar* No. 150F, (foil type)—gold, silver and copper.

1/100"	28,000	$7.75
1/80"	21,450	7.00
1/64"	17,200	5.70
1/50"	13,400	5.60
1/32"	8,600	5.50
1/16"	4,300	5.45

4. General Information:
   a. Staple available upon request on above types.
   b. Above types also available supported with Nylon, Fortisan or other synthetics.
   c. Colors available on above upon request at slight additional cost.
   d. Quantity discounts on above prices.
   e. Fairtex is supplied on 1 lb. disposable spools—48 spools per case and on ½ lb. disposable spools—100 spools per case.

Metlon Corp.

Effective April 28, 1958

Metlon*-Mylar** Price List

Metlon* F-Mylar (Foil Laminated)

Width	Yards Per Lb. (Plus or minus 5%)	Price Per Lb. Gold or Silver	Standard Colors
1/120"	32,200	$9.80	$10.15
1/80"	21,500	7.10	7.45
1/64"	17,200	5.70	6.30
1/50"	13,500	5.60	6.15
1/32"	8,600	5.50	6.00
1/16"	4,300	5.45	6.00
1/8"	2,150	5.45	6.00

Quantity Discounts: 2,000 lbs.—3%
5,000 lbs.—5%

To earn discount, quantity ordered must be withdrawn within 90 days from date of order.

Terms: 1% 10 days, net 30. F.O.B. Providence, Rhode Island. Minimum freight allowed on shipments of 100 lbs. or over.

Put Up: Plastic Disposable Spools.

Minimum Order: One case (approximately 40 lbs. net). Smaller quantities subject to surcharge.

Palletizing: On request, shipments of 4 cases or more will be palletized without additional charge.

Prices apply to continental U. S. A., Canada and Mexico.

* Metlon's registered trademark for non-tarnishing metallic yarn.
** DuPont's registered trademark for polyester film.

Reynolds Metals Co.

Reynolds Aluminum Yarns
January 29, 2958

200 Series

ϕ PRICE PER POUND—48 THRU 1,999 POUNDS

	PRODUCT NUMBER	WIDTH	APPROX. YIELDS IN LINEAL YDS. PER LB.	(1) Standard Colors	(2) Special Colors	(3) Non-Standard Colors	(4) Multi-Colors
Acetate-Butyrate	204	1/8"	1,350	$2.80	$3.05	$3.05	$3.05
	204	1/16"	2,700	2.85	3.10	3.10	3.10
	204	1/32"	5,400	3.00	3.25	3.25	3.25
	204	1/50"	8,450	3.25	3.50	3.50	3.50
	204	1/64"	10,800	3.35	3.60	3.60	3.60
	204	1/80"	13,500	4.00	4.25	4.25	4.25
Mylar-Foil	230	1/8"	1,450	$5.60	$5.95	$5.95	$5.95
	230	1/16"	2,900	5.75	6.10	6.10	6.10
	230	1/32"	5,800	5.90	6.25	6.25	6.25
	230	1/50"	9,050	6.05	6.40	6.40	6.40
	230	1/64"	11,600	6.20	6.55	6.55	6.55
	230	1/8"	14,450	7.25	7.60	7.60	7.60
Mylar-Foil	235	1/8"	2,150	$5.35	$5.70	$5.70	$5.70
	235	1/16"	4,300	5.45	5.85	5.85	5.85
	235	1/32"	8,600	5.50	6.00	6.00	6.00
	235	1/50"	13,400	5.60	6.15	6.15	6.15
	235	1/64"	17,200	5.70	6.30	6.30	6.30
	235	1/80"	21,450	7.00	7.35	7.35	7.35
Mylar-Foil	215	1/8"	1,730	$5.30	$5.65	$5.65	$5.65
	215	1/16"	3,460	5.45	5.80	5.80	5.80
	215	1/32"	6,920	5.60	5.95	5.95	5.95
	215	1/50"	10,800	5.75	6.10	6.10	6.10
	215	1/64"	13,840	5.90	6.25	6.25	6.25
	215	1/80"	17,270	6.95	7.30	7.30	7.30

Reymet Staple: Foil Mylar $6.00 per lb.

Metallized Mylar: $10.50 per lb. These can be cut in width to 1/220", also full range of Colors.

(1) Standard Yarn Colors: Silver and Gold.

ϕ (2) Special Yarn Colors: Refer to Products Supervisor, Special Foil Products located at Richmond, Va.

(3) Non-Standard Yarn Colors: Refer to Products Supervisor, Special Foil Products located at Richmond, Virginia.

(4) Multi-Colors: One or two colors.

ϕ Quantity Discounts to be applied on invoice:
5,000 lbs. and over less 5%.
2,000 thru 4,999 lbs. less 3%.

Items can be grouped for quantity price provided each is held to a minimum of 250 pounds. No grouping for less than 250 pounds.

Minimum acceptable orders for standard and special colors is 48 pounds per size and color.

Minimum acceptable order for non-standard colors is 150 pounds per size and color.

AVAILABLE PACKAGES:
Following types available:

Die-cast aluminum spools with straight flange; 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.40 each are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th & Byrd Streets, Richmond, Virginia.

No charge returnable plastic spools with 3¼" O.D., 4½" traverse. Each spool contains approximately 1 pound of yarn. These spools are returnable for credit @ $.02 each F.O.B. customer's plant. Subject to inspection and count of seller.

Tin spools with straight flange with 3" O.D., 3¼" traverse. Each spool contains approximately 8 ounces of yarn. These spools, billed at $.10 each are returnable for credit in good condition, F.O.B. Reynolds Metals Company, 11th & Byrd Streets, Richmond, Virginia.

PACKING:
36 spools per corrugated fiber carton, size 18-1/16" x 14-1/16" x 11".

ORDERING DATA:
Specify Product, Width, Color and Type of Spool.

Aluminized Series

PRODUCT NUMBER	WIDTH	APPROX. YIELDS IN LINEAL YARDS PER POUND	PRICE PER POUND 48 THRU 1999 POUNDS
250	1/32"	10,000	$8.05
250	1/50"	15,650	8.20
250	1/64"	20,000	8.35
250	1/80"	25,000	10.25
255	1/32"	15,500	$9.80
255	1/50"	24,200	10.15
255	1/64"	31,000	10.40
255	1/80"	38,700	12.40

250 offered in silver and gold.
255 offered in silver only.
Quantity discounts to be applied on invoice:
2,000 lbs. and over less 3%.
5,000 lbs. and over less 5%.

Sizes can be grouped for quantity price providing each is held to a minimum of 250 lbs.

No grouping for less than 250 lbs. Minimum acceptable order is 48 pounds per item.

AVAILABLE PACKAGES:
Following types available.

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Calendar of Coming Events

Dec. 3—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Dec. 6—Southern Textile Association Piedmont Div. fall meeting. Johnston Memorial Y.M.C.A., Charlotte, N. C.

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Jan. 7—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Jan. 16—AATCC Northern New England Section. Colonial Club, Lynnfield, Mass.
Jan. 20-30—Plant Maintenance & Engineering Show. International Amphitheatre, Chicago, Ill.
Jan. 26-29—International Heating & Air Conditioning Exposition. Convention Hall, Philadelphia, Pa.
Jan. 26-29—Plant Maintenance & Engineering Show. Public Auditorium, Cleveland, Ohio.
Feb. 3-5—Reinforced Plastics Div. of Society of the Plastics Industry 14th Annual Technical & Management Conference. Edgewater Beach Hotel, Chicago, Ill.
Feb. 4—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Mar. 4—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Mar. 12-13—ASME Textile Engineering Div. annual spring meeting. Clemson House, Clemson, S. C.
Mar. 19-21—American Cotton Manufacturers Institute annual convention. Palm Beach Biltmore Hotel, Palm Beach, Fla.
Mar. 26-27—Textile Quality Control Association spring meeting. N. C. State College, Raleigh, N. C.
Apr. 1—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Apr. 28-29—Institute Textile Technology meeting of Technical Advisory Committee and Board of Trustees. Charlottesville, Va.
Apr. 29-30—The Fiber Society, Inc. spring meeting. Fontana Village, N. C.
May 4—Nat'l Association Hosiery Manufacturers annual meeting. Claridge Hotel, Atlantic City, N. J.
May 4-8—Knitting Arts Exhibition. The Auditorium, Atlantic City, N. J.
May 5—93rd annual meeting Underwear Institute. Hotel Traymore, Atlantic City, N. J.
May 6—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
May 8-13—Tufted Textile Manufacturers annual convention. Cruise from Savannah, Ga. to Nassau.
May 12-14—Cotton Research Clinic. Grove Park Inn, Asheville, N. C.
May 12-16—Textile Institute annual conference. Scarborough, England.
May 18-23—National Cotton Week.
Jun. 3—AATT monthly meeting. Della Robbia Room, Hotel Vanderbilt, New York, N. Y.
Jun. 9-12—Material Handling Institute's Exposition. Public Auditorium, Cleveland, Ohio.

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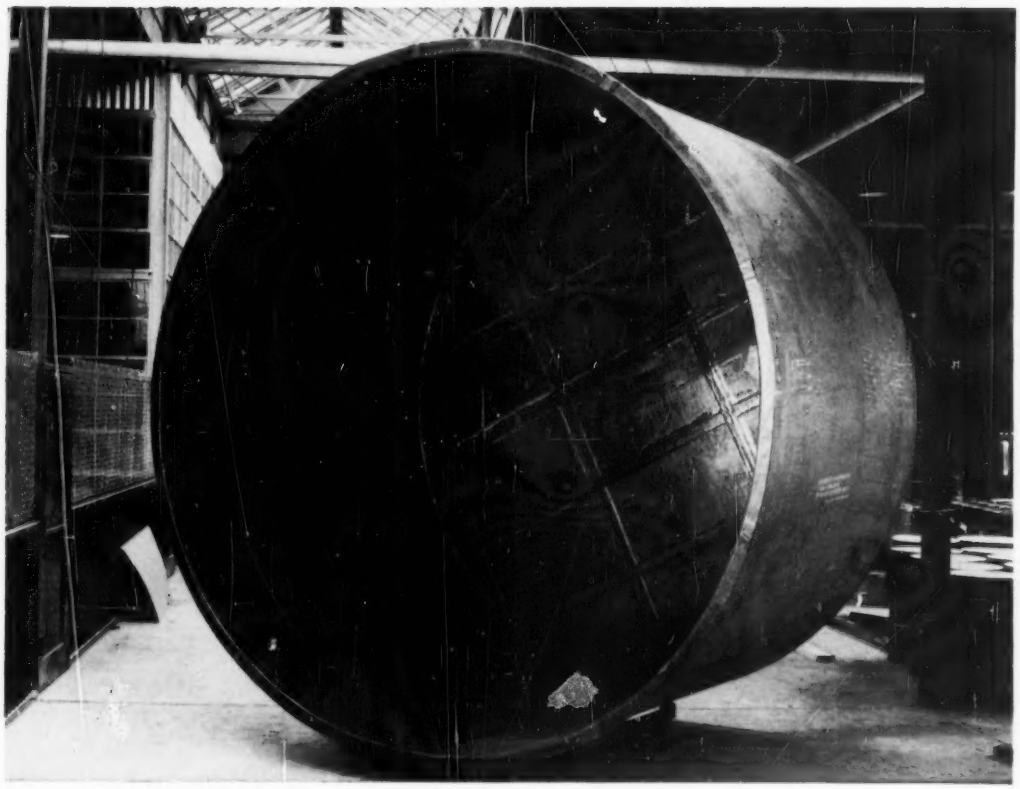

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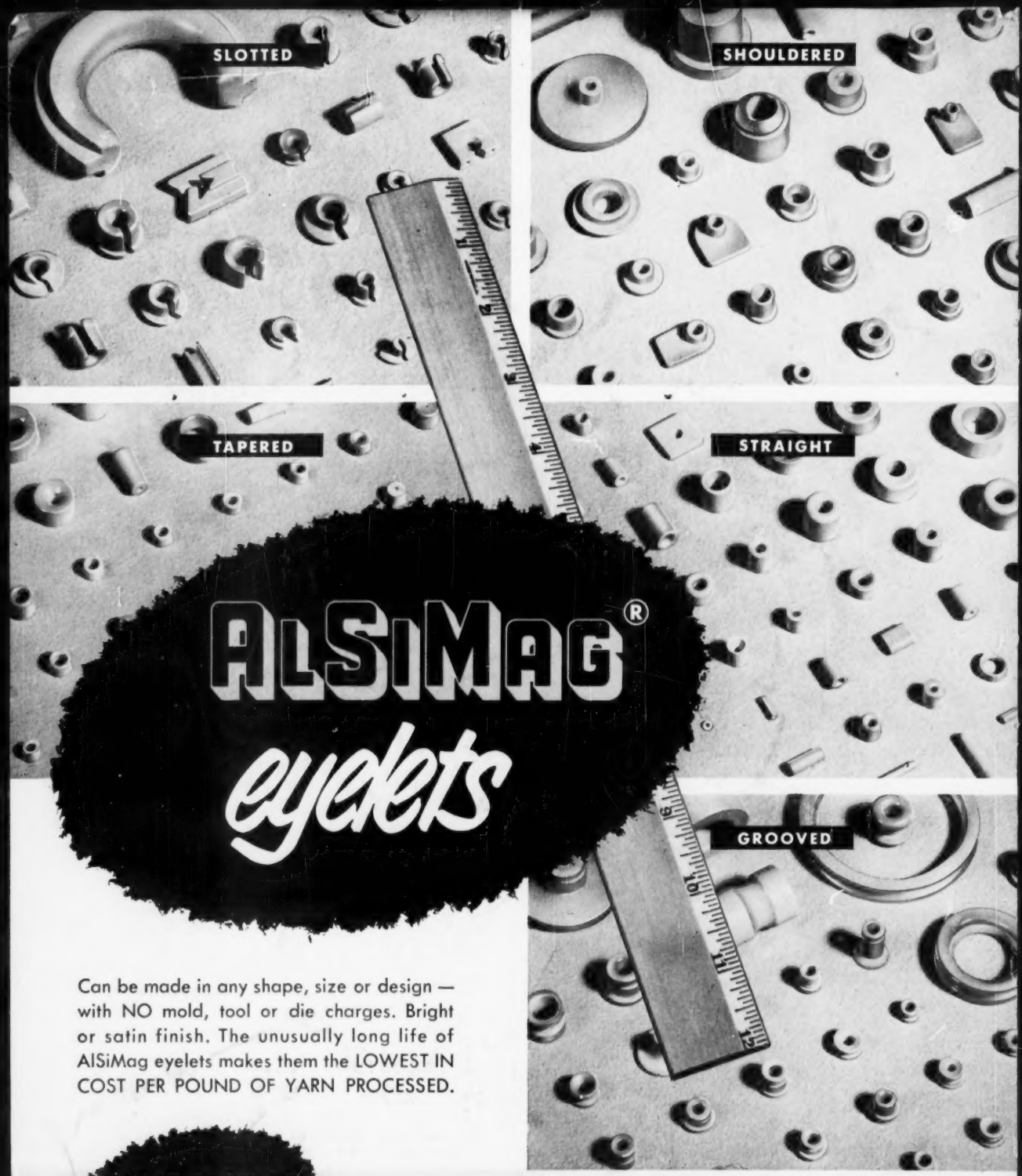

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